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THE TREATMENT OF UNCOMPLICATED DUODENAL ULCER

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The term "uncomplicated duodenal ulcer" implies the absence of perforation, deep penetration, hemorrhage or gastric retention. The treatment of uncomplicated duodenal ulcer is a problem which is encountered so frequently that it constitutes a challenge to the ingenuity of the medical profession. This problem becomes even more important during wartime, when the incidence of duodenal ulcer increases. Great confusion regarding treatment has arisen because of the number and variety of therapeutic methods which are perennially finding their way into medical literature. Many of these so-called improved methods live a short period and die the natural death of fads, but some members of the medical profession go on applying them even after their sponsors have discontinued their use. Certain fundamental principles pertaining to peptic ulcer are not used sufficiently in the evaluation and treatment of this disease. Too often the local lesion is remembered and the patient who harbors the disease is forgotten. In this paper we are attempting to point out how many of the known facts concerning this disease can be applied to its treatment with intelligence and efficiency.

DIAGNOSTIC FEATURES

Whenever a patient complains of abdominal pain or distress which is suspected of being due to duodenal ulcer, the physician should not feel solely dependent on the laboratory or roentgenologist for a diagnosis. In fact, to do so is to overlook some important diagnostic points. Few types of pain or distress indicate the diagnosis as clearly as that which occurs with duodenal ulcer. The outstanding feature of such distress is that it is chemical in origin and is dependent on the presence of free hydrochloric acid for its initiation and behavior. Whenever upper abdominal distress occurs at a time when free acid is expected to be at its height, namely several hours after a meal and especially at 1 or 2 a. m., and whenever this distress is relieved by measures which will dilute, neutralize or evacuate the acid chyme, a diagnosis of ulcer should be made and considered correct until proved otherwise. This diagnosis may be considered correct even though repeated roentgenoscopic examinations do not reveal the ulcer. The frequency with which early duodenal ulcer is demonstrated on roentgenologic examination varies directly with the skill of the roentgenologist, and because of the difficulties inherent in such a demonstration it is still necessary to rely on a clinical rather than roentgenologic diagnosis to determine definitely the presence of an active duodenal lesion. It must not be forgotten, however, that gastritis, especially in its erosive forms, may produce ulcer-like distress, but the presence of gastritis may be determined or excluded by gastroscopy. Aside from its chemical nature the location, radiation and intermittence of the distress are of importance in making the diagnosis.

If duodenal deformity is demonstrated on roentgenoscopic examination, the clinician should ask himself a number of searching questions. Is the deformity caused by an intrinsic gastrointestinal lesion and, if so, is it ulcer? Is the ulcer active? Is the ulcer causing the symptoms of which the patient complains? Is the ulcer associated with some other abdominal pathologic process? Is the ulcer complicated?

CHOICE OF TREATMENT

The capacity for healing possessed by ulcers is truly remarkable. Even when many factors promote chronicity, the natural tendency of the ulcer is to heal. It is obvious that the ideal time to heal an ulcer is early in its course. Unfortunately, many ulcers are allowed to continue because of the slight concern of the patient, the failure of his physican to recognize the symptoms early or because of ineffectual, incomplete treatment.

As a rule the following groups of patients who have duodenal ulcer should receive medical treatment first: (1) almost all those who have uncomplicated duodenal ulcers, especially those of short duration; (2) all younger patients, 30 years or less, if at all feasible; (3) usually those older patients who have more chronic uncomplicated duodenal ulcers, especially if the symptoms are mild or infrequent, not progressive and do not interfere seriously with the efficiency of the patient; (4) aged patients with duodenal ulcers, especially those who have other organic disease, such as active pulmonary tuberculosis, angina pectoris, diabetes mellitus, advanced nephritis, decompensated heart disease or obesity; (5) definitely psychoneurotic patients with duodenal ulcers; (6) hyperirritable patients with rapidly emptying stomachs; (7) patients who refuse operation even though it may be indicated, and (8) women patients whose ulcers are not complicated by extragastric disease, such as gallstones. All such patients usually do well on medical treatment.

Circumstances which indicate surgical procedures in spite of the uncomplicated nature of the duodenal ulcer

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are as follows: (1) ulcer of long standing with extensive chronic scarring which may make healing difficult and recurrence likely; (2) the possible association of disease in the appendix or gallbladder, or both, which is not curable by measures other than surgical; surgical exploration may reveal some extragastric factor as being more important in the production of symptoms; (3) economic conditions which make dieting impossible and make the earlier restoration to health and work following operation desirable, and (4) intractability to treatment.

After it has been decided that the symptoms are the result of a duodenal ulcer, whether or not the ulcer is demonstrated roentgenologically, there are several essentials to success of medical treatment.

ESSENTIALS TO SUCCESSFUL MEDICAL TREATMENT

Careful Evaluation of All the Factors Which Seem to Promote Chronicity.—All factors which seem to promote chronicity must be evaluated carefully. This can be done in each case only by a carefully taken descriptive history which includes not only a chronologic account of the development of symptoms but also an inquiry into the possible etiologic factors and the factors acting to keep the ulcer active.

The neurogenic factor in ulcer has been considered in other publications. Suffice it to say that this is probably the most important single factor in any case of ulcer. Its recognition is necessary first in the evaluation of symptoms. It becomes even more necessary in managing the actual healing of the ulcer, but in our opinion it offers its prime service in the prevention of recurrence of ulcer.

Chemical factors cause the greatest difficulty in the healing stage because of the lack of really adequate methods of reducing the concentration of acid to a low enough point to permit quick healing and of maintaining it at that level throughout the twenty-four hours. When a method of eliminating secretion of free acid is found, all ulcers will respond to treatment, provided mechanical obstruction is not already too great.

Infections with special affinity for gastroduodenal localization may lead to acute flare-ups of chronic ulcers, to formation of acute ulcers or even to gastritis in association with ulcers. Such infections may be acute forms, such as influenza, septic sore throat or coryza, or they may be in the form of chronic tonsillitis, periapical dental infection or chronic prostatitis.

Vascular changes, typified by arteriosclerosis, may reduce the nutritional supply to an ulcer enough to interfere with healing. Such arteriosclerosis constitutes a decided additional risk if the possibility of bleeding arises.

Nutritional ulcers are probably uncommon, but poverty, voluntarily restricted diets, fad diets, too strenuous ulcer diets, strictly limited allergy diets and finally anorexia nervosa at one time or another may be primary causes or may promote chronicity.

Traumatic factors are uncommon in duodenal ulcer. The best examples of such factors pertaining to peptic ulcer in general seem to be the ulcerations found in some cases of diaphragmatic hernia or in cases of bezoar. In these cases local injury certainly bears relationship to the origin of the lesion. However, flare-ups of deep chronic duodenal ulcers in farmers often occur during periods when they are riding on a tractor, and such lesions have been known to develop following blows to the upper part of the abdomen.

Cooperation of the Patient.—The treatment of duodenal ulcer is dependent on the cooperation of the patient for its success. Because of those very qualities which may have led to his ulcer in the first place, the ulcer patient may find it difficult to cooperate. Restlessness, ambition, drive, irritability, inattention and, above all, lack of desire, inability or unwillingness to learn from past experience are qualities which hinder the physician's efforts. Ulcer patients are, as a rule, intolerant of ill health and resent the fact that their activities are restricted, almost as much as they resent having pain. They seek an easy road to surcease from their problem. However, most patients who have duodenal ulcer are shortsighted and, although usually amenable to all therapeutic suggestions if their ulcers are hurting, it is difficult to make them carry on serious programs of therapeusis when they are comfortable.

Two points should be made clear to every patient whose ulcer is going to be treated by a medical regimen. The first is that the responsibility for the healing of the ulcer belongs to him and that he should not expect to pass the responsibility to the physician, to the surgeon or to chance. The average ulcer patient welcomes any suggestion from his physician that he have an operation for his ulcer. Most of such patients will admit that in large part the one factor which keeps them from following directions carefully after they are comfortable is the feeling that if pain and distress ever become sufficiently intolerable they can always have the ulcer cut out and be rid of it, easily and permanently.

The second point is that the ulcer patient should realize that treatment must be directed to more than the local lesion and that even after healing of the lesion care must be used for the rest of his life to prevent recurrence. The patient, therefore, must be convinced that the healing of the ulcer and remaining free from symptoms are two entirely different achievements. Knowing this, the patient must be instructed in the rationale of the treatment so that in his daily life he will be able to anticipate the needs which arise for added care in the prevention of recurrence.

When a patient with an ulcer is seen soon after the onset of his symptoms or when he has had unrecognized and untreated ulcer symptoms for a long time, hospitalization for observation and planning of a program is advisable in most instances. Many physicians feel that as long as symptoms can be relieved on an ambulatory program the expense of hospitalization is not justified. However, such care in these and other types of patients with ulcer has manifold purposes: patients who are stimulated and tense may not become relaxed or cooperative otherwise; such rest and relaxation may be necessary to start healing and to convince the patient of the relation of his nervous system to his symptoms; the physician has a chance to become better acquainted with the various factors present in the personality of the individual and to investigate any possibility of obstruction; the time spent in the hospital may be used to overcome the usual reluctance of the patient to give up the use of tobacco; a definite therapeutic program and goal may be worked out for each patient. When such hospitalization is not practical and is not demanded by the severity of symptoms, ambulatory instruction is the next best choice. One advantage which the ulcer

patient enjoys in the hospital is that he usually mingles enough with other patients who have ulcers to benefit from discussion of the mutual problem. Often this tends to overcome barriers to the physician's efforts. Lectures on the subject of ulcer are of benefit in giving groups of patients better understanding of the rationale of treatment.

MEDICAL TREATMENT

It is clear that, while maintenance of anacidity by nearly continuous neutralization will lead to healing of a duodenal ulcer if maintained long enough, recurrences will not be prevented unless the underlying factors are eliminated. Our program must contain more than the inevitable diet list and alkalis if success is to be maintained.

The treatment of uncomplicated duodenal ulcer then falls naturally into three parts: (1) the control of ulcer symptoms, which is usually rapid and rarely requires more than a few days; (2) the healing of the ulcer, which probably requires from twelve to twenty-four months, depending on many factors, and (3) prevention of recurrences, which requires intelligent application of individual prophylactic measures during the rest of the patient's life.

Getting the Ulcer Patient Comfortable.—The measures employed in accomplishing our goal naturally vary with the character of the ulcer with which we are dealing.

Many patients who have duodenal ulcers do not have clinical symptoms. The ulcers may have been found in a search for the cause of other symptoms. However, a remote history of ulcer-like distress which indicates the past existence of activity may be obtained from these patients. Perhaps such a patient requires only a program to prevent recurrence of activity of the ulcer.

The patient with an average amount of pain referable to the ulcer or even mild distress is treated best by hospitalization for reasons already mentioned. No other method of teaching the patient to understand his own condition seems to work quite so well. Treatment is dependent for its success not on a routine and unvarying approach to what is always a variable problem but on the correct evaluation of the individual factors involved and institution of measures individually tailored for their correction. We have no fixed dietary program but use a type of diet commensurate with the severity of the symptoms. The variety of foods is rapidly increased so that at the time of dismissal from the hospital the patient's program will permit him to carry on fairly normal activity. We may start with frequent feedings of milk and cream, alternating every half to one hour with an alkaline powder or antacid, or we may even begin with a bland diet given in three meals, with milk halfway between meals. Sedatives, antacids and antispasmodics are essential adjuncts in the treatment.

When symptoms of ulcer are subacute and medical treatment is to be employed, a rigid program in the hospital always is instituted at the Mayo Clinic. An effort is made to keep the free acid of the gastric contents at as low a level as possible throughout the twenty-four hours. Three or 4 ounces (90 to 120 cc.) of a mixture of half milk and half cream is provided every hour from 7 a. m. to 9 p. m. On the half hours between the feedings of milk and cream we usually give either alkaline powders or aluminum hydroxide. When distress is severe during the night and this cannot be attributed to a partial duodenal obstruction with resultant hypersecretion, sedation at bedtime permits several night feedings without too much disturbance of sleep. Gastric aspiration at bedtime, followed by instillation of olive oil, also may be of service in preventing night distress. Some physicians have preferred the use of a continuous drip of milk or aluminum hydroxide through a nasogastric tube, and indeed in certain selected cases it is of great value. In most cases, however, we have found its use unnecessary. If aspiration of gastric contents shows free acid of less than 20 units a half hour after a feeding of 90 to 120 cc. of milk and cream, the control of acid after adequate sized doses of alkaline powder or aluminum hydroxide can be assumed in most instances.

Healing of the Ulcer.—Even though a duodenal ulcer has been demonstrated roentgenographically, its activity may be questioned. When there is doubt, it is wise to determine the effect of medical treatment on the abdominal symptoms. If symptoms are relieved thereby an attempt to heal the ulcer will probably be advisable.

After the average duodenal ulcer has been brought under symptomatic control, the diet may be increased rapidly to a liberal bland diet with milk between meals and at bedtime, and antacid an hour after meals. The patient is warned of the fact that he must continue to treat himself for ulcer even though he does not have any distress. Mild sedation helps him readjust to his work, and the use of sedatives during periods of nervous tension or overloads of responsibility should be recommended.

Because of the tendency of ulcers to flare up during colds, family tragedies and the like, the ulcer patients should be forewarned to be unusually careful and, contrary to the usual tendency, to take feedings frequently, to eat lighter food and to use antacids more vigorously as a prophylactic measure during these times. The inability of many ulcer patients to learn from past experience is illustrated by the fact that most seasonal types of ulcer distress or pain could be prevented by adequate treatment prior to the expected episodes.

If the patient's cooperation and understanding of the entire problem are good he soon perceives that, contrary to the layman's usual notion of ulcer treatment, the diet is not the principal means of treatment. Almost any physician who has had experience with ulcer patients will admit that the nervous factor is the dominant causative factor, but almost all of these same physicians feel rather hopeless when the job of applying this knowledge in the treatment of ulcer confronts them. They fall into the same pitfall which traps the patient. They rely on diet and if that fails, as it often does when applied automatically, they immediately feel the ulcer is intractable and urge surgical treatment. The relative unimportance of the diet in the treatment of many ulcers is shown in the fact that such an ulcer may cause severe symptoms which remain unchanged in spite of vigorous measures until rapid clearing of some nervous factor leads to prompt alleviation of the symptoms of ulcer. In all probability the poor hope offered in statistical reports of healing of duodenal ulcers is the direct result of the inability of the physician to impress the patient sufficiently with the problem before him. It is not necessary to psychoanalyze the patient to treat the nervous factors. It is necessary to teach the patient

to know himself, his weaknesses and his nervous characteristics and to realize their effect on his ulcer. This understanding of his own reactions is most imporant, and the intelligent application of frequent feedings permitted thereby merely serves to counteract the effect of a wide variety of factors on his weak spot, his duodenum.

From the start the patient should realize that his ulcer is an individual problem and that he has to help in establishing the basis for the treatment. He should not feel that ulcer is a condition about which he has to feel fatalistic and hopeless. Once he is aware of his function as a detective in finding the various features of his personality, work or environment which are acting unfavorably on his ulcer he usually contributes many essential points of which he has been aware. Cure of the ulcer is dependent on the patient's protection of himself from himself, in other words. Diet and antacids used in an intelligent fashion in order to prevent distress for one to two years can probably be considered to have rendered the ulcer quiescent. The evidence of the roentgenoscopic examination is of only moderate value in deciding about healing of the ulcer. If all the evidence after two years indicates satisfactory progress, however, the patient may consider himself in the third stage of treatment, which involves prevention of further ulceration.

In the medical treatment of subacute duodenal ulcer it is necessary to insist on more intensive and more persistent care. The diet is liberalized more slowly, more rest is advised and, in addition to the faithful use of feedings of milk between meals, administration of antacids before and after meals is continued for many months and sedatives, as well as antispasmodics, are prescribed for use during the first month or two of treatment after hospitalization.

Prevention of Recurrence.—After the duodenal ulcer is considered healed, the patient must understand several aspects of the problem if he is to prevent future recurrences.

In the first place, his previous self analysis has shown him the ease with which his periods of sustained nervous tension, anger, worry, anxiety, excess responsibility or work may lead to acute flare-up of his ulcer. He may have learned the wisdom of avoiding such episodes. However, not every one is able to change one's life enough to avoid such strains all the time. If periods of strain cannot all be avoided, sufficient insight may be developed so that the patient can recognize the strains which are dangerous and prevent harm to himself by intelligent use of frequent feedings, antacids and sedatives during the period of strain.

In the second place, the patient must realize the danger of returning to any of his old habits which are likely to be irritating to his ulcer. He must stay away from alcoholic beverages, tobacco in all forms and the various spices, condiments and relishes which are so notoriously upsetting. Furthermore, he should make the taking of milk or milk and cream at 10 a. m., at 3:30 p. m. and at bedtime a habit which should last the rest of his life.

The fact that treatment has been successful enough so that the patient can liberalize his program and rely on his knowledge and judgment of his own ulcer to prevent further trouble serves to give him a sense of confidence and hope for the future.

SOME NUTRITIONAL PRINCIPLES OF MASS FEEDING

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Discussion in modern dietetics and nutrition occasionally leaves the impression that proper feeding and the attainment of adequate nutrition are dependent on following a set and rigid food pattern. Thus we meet with rather wide acceptance of the idea that almost every day every one should pattern his food intake somewhat along the following lines: one serving of meat, one egg, a pint of milk, a certain quantity of grain products, two vegetables, one of which is a leafy green or yellow, and two fruits, one of which is citrus. We see large displays exhorting one in no uncertain terms to "eat these EVERY day," followed by a list of well selected foods known to be rich in nutritive value.

Such a plan for the general public is well conceived, for the nutritional significance of foods or food groups is not common knowledge. By following such a plan the lay person has a fair chance of attaining his daily nutritive requirements. However, for those who are more intimately concerned with nutrition it is basic to recall that nutritional adequacy is attainable by a wide variety of means and that it is not restricted to one or a few food patterns. In times and situations such as the present, when the normal wide variety of foods is decreased because of the ramifications of waging war, it becomes most important to appreciate the nutritional significance of foods and food groups, so that restriction in kinds or quantities of certain types of food may be offset by the use of other foods of similar types.

In the substitution of one type of food for another, however, it is important to maintain, as far as is practicable, the nutritional value of the diet as a whole. In other words, such substitution should be made on the basis of nutritional equivalence. The principle of equivalent substitution is most easily followed if foods are grouped together on certain bases which have proved valuable in the application of nutritional principles to mass feeding, namely similar nutritive content, unique contribution to the diet or special function in the diet. In this way all foods fall into seventeen food classes, which will be discussed further in some detail.

It is becoming increasingly important for those concerned with the nutrition of the armed forces and of the civil population to think along basic nutritional lines. As a matter of fact, this is being forced on us by the sequence of events. As far as the soldier in campaign is concerned, it is apparent that, as the problems of transporting food in increasingly large quantities over long distances become more and more acute, many familiar foods will of necessity be dropped from his daily fare. Already the logistic advantages of the dehydrated, desiccated, compressed and concentrated types of food have resulted in their increased use by the soldier. With regard to civilians, as the problems of reaping crops, transportation, supplying the soldier

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and supplying other countries grow in importance so will the availability of many common foods be decreased. In turn there will be a departure from what one might, for convenience, term the "luxurious" choice of foods. With this change there should come a better realization of the ways in which adjustments and changes may be made in the ordinary diet without harmful effect. It should be recognized that certainly no one food item, and frequently no one food class, can be called "indispensable."

The attainment of adequate nutrition depends on the provision, consumption, physiologic absorption and utilization of certain indispensable nutritional components. Foods and food classes are of importance primarily from the standpoint that they provide these components. Foods should be secondarily important because of their palatability and attractiveness, which encourage their consumption in quantity and the consumption of other foods. It is true that on occasion the secondary consideration may assume equal importance with the primary. Fundamentally, however, it is the provision of a certain quantity of energy, protein, minerals and vitamins that is the important problem. It is comparatively unimportant how these nutritive components are provided; whether, for example, vitamin C is provided exclusively by a daily citrus fruit, by a daily leafy green vegetable or by a combination of the two. Whether one obtains one's calcium from fresh milk, evaporated milk or dried milk is not basically important, except that the general acceptability of the food product affects the amount eaten and therefore the amount of calcium obtained. It is pertinent to point out, although in a light vein, that if the wall plaster could be made palatable and esthetically desirable it might be used for the purpose of furnishing part or all of our needs for calcium. With similar reservations a rusty nail might serve as a source of iron, as might likewise drinking water which had been stored in an iron cistern. In the attainment of adequate nutrition, therefore, it is necessary to appreciate fully why, nutritionally speaking, a food is used.

It is not practical to attempt to remember the nutritional value of each food used daily by the average person. Moreover, individual nutritive values—i. e., concentrations—are of limited importance from the aspect of practical mass nutrition. For example, strawberries are an excellent source of vitamin C in themselves, but when it is considered that the average daily consumption of strawberries over an appreciable length of time is usually very small it becomes apparent why they are in themselves rather unimportant as a significant constant source of this vitamin. In effect, this is to say that there are two equally important aspects to the attainment of nutritional adequacy—the quantitative and the qualitative. It is desirable to remember in this regard that consumption in large quantity of a food (or food class) may frequently impart nutritional importance to the food or food group concerned, even though its concentrations of nutrients may be rather low. For example, potatoes are a rather dilute food, from the standpoint of vitamins—the concentrations of vitamin C and the B vitamins are not strikingly high. Yet, when considered in terms of the quantity consumed by the soldier, the potato makes a rather significant contribution to the soldier's daily intake of these vitamins.

The entire problem of interpreting dietaries is simplified by considering not individual foods but, instead, food classes. On the basis of similar nutritive value, unique contribution to the diet or special use in the diet, all foods can be classified into seventeen food groups, as previously mentioned. These are (1) meats, fish and poultry, (2) eggs, (3) milk and milk products, (4) fats with a relatively high vitamin A content (butter and fortified margarines), (5) other fats containing little vitamin A (cooking oils and the like), (6) cereals and grain products, (7) beans and other legumes, dry, (8) sugars and syrups, (9) vegetables, leafy green or yellow, (10) tomatoes, (11) citrus fruits, (12) potatoes (Irish), (13) vegetables other than leafy green or yellow, (14) fruits other than citrus, (15) dried fruits, (16) beverages (coffee, tea, cocoa) and (17) miscellaneous. This classification has been discussed in detail elsewhere. Fifteen of these groups are nutritionally significant, although the last two, namely beverages and miscellaneous, are dietetically important in that they may on occasion exert an indirect influence on nutritional considerations. After conversion to unit intake per man or per hundred men it is possible to appraise the diet nutritionally. By the use of such a plan one recognizes that what may appear to be a somewhat low intake of one class of foods may be offset by an increased intake of another class. For example, a low intake of tomato products may be offset with regard to vitamin C by an increased intake in the leafy green or yellow vegetable class or by sufficient citrus fruit or vice versa. In similar manner a decrease in the intake of leafy green or yellow vegetables may be offset with regard to vitamin A by an increased intake of liver in the meats class or by cumulative slight increases in other classes such as eggs, butter and tomatoes. In effect, then, nutritional adequacy is attainable by a wide variety of means and is not limited to any one set food pattern. For families this principle is conveniently applied on a weekly basis. The total amounts of food groups used by a family may be varied interchangeably, depending on the relative availability of foods, provided, however—and this is most important—that nutritional adequacy is maintained or not decreased appreciably. The proper technic is to determine the number of pounds (or fractions thereof) per person of each food group which has proved acceptable to the family on the basis of its food habits, level of activity, income level, environment and other factors. Once this composite picture is established, variations can be introduced without adversely affecting the nutritive level of the diet, if substitution is made on the basis of nutritional equivalence. Indeed, certain types of substitution, if judiciously chosen, have the effect of actually improving both the acceptability and the nutritive value of the diet. The principle involved is illustrated in table 1, which has been prepared for use in military circles. The principles are widely applicable, however.

It is obvious that the key to proper substitution is a thorough knowledge of the nutritional significance of food groups. For the Army this significance is apparent from table 2. It is unlikely that there would be any major shift in importance in terms of civilian diets, since field ration A corresponds roughly to a liberal civilian diet. In table 2 is indicated the approximate contribution of food classes in terms of percentage of the daily nutrients as planned from May 1941 to April 1942, U. S. Field Ration A. The figures in parentheses illustrate the shift in importance when probable conservative deductions for preparation procedures are

applied to the levels of some of the labile vitamins, namely thiamine (in meats and potatoes) and ascorbic acid (in vegetables undergoing cooking and other preparation procedures). (Similarly, deductions should be applied to other vitamins; however, our present information on cooking losses is not quite as extensive for the other vitamins as it is for the two mentioned.) It is noteworthy that foods consumed in the raw state, or those undergoing only slight preparation and cooking, will contribute a higher percentage of the daily intake of nutrients as actually consumed and that this increase in importance varies directly with the extent of nutrient destruction caused by preparation procedures.

Some broad conclusions are apparent from this table. These conclusions are surprisingly different from some which are commonly accepted. For instance: 1. Eggs, while contributing certain amounts of many nutritive components, are actually for the soldier a good source of riboflavin only. (It must be remembered in this regard, however, that they are quite important in cooking and baking, and therefore they obviously have a masked importance in influencing the quantitative consumption of some of the other foods.) 2. Milk products (including evaporated milk and cheese) are of importance for their contribution of protein and riboflavin, in addition to their commonly accepted importance with regard to calcium and phosphorus. 3. Grain products are of importance for a number of nutritive essentials, including not only calories and the B vitamins but also protein and certain minerals. 4. Legumes, although frequently spoken of in relation to their being a good source of protein, are, in addition, a fair source of iron. 5. Syrups and sugars contribute chiefly calories (although they may have additional importance from the standpoint of "pleasure" and in influencing favorably the acceptance of other food groups). 6. The leafy green or yellow vegetables are of importance not only for their vitamin A potency but also for vitamin C. 7. Tomatoes, frequently considered to be a major source of vitamin C, may not really be so at all; they are, however, a good means of providing this vitamin because of their general popularity and the quantities in which they will ordinarily be consumed. 8. Attention should be drawn to the potato. It may be important not only for vitamin C but also for certain of the B vitamins as well as for certain minerals. In the quantities consumed by the soldier, it is a most important food in the diet. In fact, in terms of returns per acre as well as an all-round nutritional contribution, it is one of the most valuable vegetables in common use. 9. Fruits other than citrus, while sometimes of significance individually, as a group contribute mainly to the pleasure of the diet.

In passing, it might be pointed out that the chart indicates that for the soldier meats contribute significantly to nine out of twelve important nutritive components, milk products to five, grain products to eight and potatoes to two. At first glance this appears to give emphasis to the old idea that if we get sufficient meat, potatoes, bread and milk all is well nutritionally. It is at this point, however, that we must turn our attention to the problems of palatability and acceptability. It should be obvious that the day after day acceptability of a diet consisting of only these four types of food would be quite limited. The legumes, the fruits, the eggs, miscellaneous items and the other

TABLE 1.—*Food Substitution Chart* *

Certain factors must be kept in mind in substituting one food for another in a planned menu: (*a*) that it is acceptable in relation to the other foods and, if possible, acceptable to the majority of the command, and (*b*) that it is nutritionally equivalent or, if not, that proper adjustments are made.

Certain foods satisfy the first requirement but not the second. In such cases it is necessary to make adjustments in the quantities or kinds of other foods that possess nutritive values displaced by the food substituted. For example, rice substituted for potatoes reduces the intake of vitamin C and certain of the B vitamins, both of which tend to be low in most diets. It is desirable, therefore, to be sure that other foods carrying these nutrients are not low in the menu. It may be necessary to increase the amounts of foods.

A. Group 12. Potatoes	
Potatoes, Irish	Baked, boiled (with or without skins), French fried, fried, hashed brown, lyonnaise, mashed, O'Brien, parsleyed, roast brown, salad, scalloped
(Potatoes, sweet	Baked, boiled, candied, scalloped)
B. Group 7. Legumes (Beans and Peas), Dried	
Beans, issue	Baked, boiled, soup
Beans, kidney	Baked, boiled, salad, soup
Beans, kidney	Chili con carne
Beans, lima	Baked, boiled, creamed, soup, with bacon or ham
Peas, black eye	Baked, boiled
C. Group 6. Grain Products	
Hominy, grits	Baked, boiled
Hominy, lye	Boiled
Macaroni	Baked, boiled, salad, scalloped, with cheese or tomatoes
Noodles	Baked, boiled, salad, with cheese or meat
Rice	Baked, boiled, curried, pudding, Spanish, etc.
Spaghetti	Baked, boiled, Italian, with cheese or tomatoes, etc.
D. Group 9. Leafy Green or Yellow Vegetables	
Asparagus	Baked, buttered, creamed, salad, soup
Beans, string	Boiled, buttered, salad, Spanish
Beet greens	Boiled, buttered
Broccoli	Boiled, buttered, creamed
Brussels sprouts	Boiled, buttered, creamed
Cabbage, green	Boiled, buttered, creamed, fried, salads
Carrots	Baked, boiled, buttered, candied, creamed, fried, salads, etc.
Chard	Boiled, buttered, creamed
Collards	Boiled, buttered, creamed
Kale	Boiled, buttered, creamed
Lettuce	Salads
Okra	Baked, boiled, etc.
Parsley	Garnish, etc.
Peas, green	Boiled, buttered, creamed, salad, soups, etc.
Peppers, green	Baked, salads, sauces, stuffed, etc.
Pumpkin	Baked, custard, mashed, pie, etc.
Spinach	Boiled, buttered, creamed, salad, soups
Squash	Boiled, mashed, pie, etc.
Tomatoes, canned, fresh	Baked, grilled, salads, scalloped, sliced, stewed, stuffed, etc.
Turnip greens	Boiled, buttered, creamed
E. Group 13. Other Vegetables	
Beets	Boiled, harvard, salad
Cauliflower	Boiled, buttered, creamed, fried, salads
Celery	Braised, creamed, salads, soups
Corn	Buttered, cob, creamed, fritters, pudding, scalloped, soups
Cucumbers	Garnish, salads, etc.
Eggplant	Baked, fried, scalloped, etc.
Lima beans	Baked, buttered, creamed, soups, succotash
Onions	Baked, creamed, fried, salads, sliced, soups, stewed
Parsnips	Baked, buttered, fried, etc.
Radishes	Garnish, salads, etc.
Sauerkraut	Baked, boiled, fried, etc.
Turnips, roots	Baked, boiled, creamed, diced, fried, mashed, etc.

1. Foods within each group may be roughly substituted for one another without seriously affecting the nutritional value of the menu. However, a notable exception is the substitution of Irish potatoes for sweet potatoes. In this case sweet potatoes do contain an appreciable amount of carotene (the precursor of vitamin A), whereas Irish potatoes are lacking in this substance.
2. From a nutritional (particularly vitamin) standpoint, foods from groups 12 and 7 (A and B) may be profitably substituted for group 6 foods (C), but not vice versa, and group 9 foods (D) may be substituted for group 13 foods (E), but not vice versa.
3. If it is necessary to substitute a food of less nutritional value for another food (as beets for spinach), then another substitution (as carrots for onions) should be effected as soon as possible, to offset the former. In this way, there will be the least impairment of nutritional adequacy.
4. When substituting the food groups as under paragraph 2, it is not so important to readjust the substitutions as under paragraph 3, unless more variety is desired, as the substitutions will provide additional nutrients.

* Material developed in connection with course in Food and Nutrition, Army Medical School.

classes which do not appear to be important in terms of major contribution do, nevertheless, make a minor contribution and may actually, by their effect on palatability and acceptability, be the controlling factors in the complete consumption of the diet and therefore assume great indirect importance in the attainment of nutritional adequacy. We usually recognize this by stating that the well rounded diet is the one which is most likely to provide optimal nutrition.

With this background, and using the concept of varying and nonrigid quantities of food groups, we may review some of the commonly accepted ideas about the nutritional importance of certain foods. As far as evaluation of the soldier's diet is concerned, let us theoretically decrease or entirely remove certain of the food classes from the daily fare in order to become more familiar with the net nutritional effect and thence, to the supply of provitamin A and ascorbic acid, and possibly of iron where the dark green leafy vegetables are concerned. It is interesting to note that at least for the soldier the planned level of vitamin A would still be much higher (owing to small quantities of liver) than that recommended by the National Research Council, and that vitamin C would also remain at acceptable levels, even after deduction for conservative probable losses in cooking. However, the decrease could well be offset, at least with regard to provitamin A, by an increased intake of such food groups as tomatoes and dried fruits. Liver is extremely high in vitamin A; another possibility would lie in increasing its intake. As far as vitamin C is concerned, tomatoes (either canned or fresh) would be valuable as replacement, and potatoes or vegetables other than the leafy green or yellow type could be used for additional quantities of

TABLE 2.—*Nutritional Contribution (Per Cent) of Various Classes of Foods Based on Food Prescribed for U. S. Army (May 1941–April 1942, Field Ration A)*

Food Group	Calories	Protein	Fat	Carbohydrate	Calcium	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Nicotinic Acid	Ascorbic Acid
Meats, fish and poultry	22.7	43.3	42.1	0.3	3.5	30.9	35.0	17.1*	48.5 (34.3)	33.4	66.0	2.0 (2.7)
Eggs, fresh	2.5	6.7	3.9	0.1	3.6	7.0	7.5	4.9	4.2 (6.0)	9.0	0.1	... (...)
Milk products (equivalents)	9.1	13.2	11.6	5.4	59.9	22.8	4.0	8.0	3.6 (5.1)	29.6	1.4	3.3 (4.4)
Butter	7.3	0.2	17.6	...	0.7	0.3	0.3	10.2	... (...)	0.2	0.2	... (...)
Fats, other	7.6	0.1	18.4	0.1	...	...	...	0.1	... (...)	...	0.1	... (...)
Grain products	22.9	21.9	5.1	38.8	11.4	17.0	16.2	0.1	23.0 (32.7)	7.7	10.0	... (...)
Legumes, dry	2.3	4.6	0.5	3.4	3.3	6.0	10.3	...	4.4 (6.2)	3.0	2.5	... (...)
Sugars and syrups	12.9	0.3	...	27.6	1.2	0.3	3.0	...	... (...)	...	...	... (...)
Vegetables, leafy green and yellow	1.6	2.4	0.2	2.6	6.4	3.3	6.4	46.9	3.8 (3.0)	3.9	3.9	30.3 (24.2)
Tomatoes	0.5	0.6	0.1	0.8	0.9	1.2	1.6	4.2	1.6 (2.3)	1.1	1.1	8.8 (12.1)
Citrus fruits	0.7	0.3	0.1	1.3	1.9	0.7	1.0	0.1	1.4 (2.0)	0.5	1.0	18.2 (25.0)
Potatoes	5.3	4.2	...	10.1	2.1	6.3	7.9	0.7	7.0 (5.5)	4.9	10.3	19.8 (13.6)
Vegetables, other	1.2	1.3	0.2	2.2	3.0	2.5	2.3	0.4	1.0 (0.8)	2.4	0.9	10.8 (8.7)
Fruits, fresh and canned	2.5	0.6	0.2	5.2	1.3	0.9	2.0	5.2	1.0 (1.4)	2.3	1.7	6.8 (9.3)
Fruits, dried	1.0	0.3	...	2.1	0.8	0.8	2.5	2.1	0.5 (0.7)	2.0	0.8	... (...)
Average nutrients per man per day as planned for period	4,200	128 Gm.	192 Gm.	490 Gm.	980 mg.	1,980 mg.	24 mg.	13,500 I. U.†	3.3 (2.3) mg. mg.	2.6 mg.	29.5 mg.	129 (95) mg. mg.

* Contributed almost entirely by liver. † International units.

Note: A daily contribution by a food of 10 per cent of the total intake of a nutrient is arbitrarily used as evidence of a major contribution to the dietary.

by deduction, with the purpose that certain foods serve in the diet as well as with the possibilities of replacing them by suitable substitution.

1. "Eat one egg almost every day." Let us remove the eggs entirely. The effect is to lower somewhat the intake of many of the nutritive components, since the egg contains small amounts of most of them. However, from the quantitative standpoint the most serious effect on the day's planned intake of nutrients for the soldier is to lower the riboflavin by about a third of a milligram. Obviously it is possible to supply the riboflavin thus removed by an increased intake of another class of food. One means of doing this would be by the addition to the diet of small extra quantities of liver, which is extremely rich in riboflavin. Other cuts of meat, usually not in great demand, are also quite rich in this vitamin. Whole grain products would be valuable, and should riboflavin be added to enriched flour this would provide another means at our disposal. Milk products, when available, would likewise fill the breach.

2. "Eat two vegetables every day, one of which is leafy green or yellow." Remove all leafy green or yellow vegetables. If it were feasible to delete from the diet this important class of foods entirely, the most serious direct nutritional effect would be with regard this vitamin. An increase of citrus fruit would, of course, be the easiest solution.

3. "Eat two fruits daily, one of which is citrus." Let us consider the possibility of an entire lack of citrus fruits. The chief loss would concern vitamin C. Ways of offsetting this are apparent from the discussion in the preceding paragraph. Furthermore, the possibility of sprouting legumes and grains as an accessory source of this vitamin should not be overlooked.

4. "Eat a certain quantity of cereals and grain products every day." Table 1 indicates that grain products are next in importance to meats for the soldier as far as supplying essential nutrients is concerned. A decrease by two thirds of the planned intake, however, would have its most striking effect on the caloric and thiamine levels. As far as the former is concerned, it is obviously possible to supply them otherwise, in the guise of fats or of sugars or syrups and the like. The thiamine which would be removed could well be furnished by a somewhat increased intake of meats or by the cumulative effect of increasing the amount of legumes, eggs and certain vegetables. It is unlikely, however, that grain products will undergo a drastic decrease in the diet. It is more probable that their consumption will be increased as other foods become less obtainable.

5. "Eat one serving of meat (or fish) every day." Reduce the intake of meat. In view of the present rationing of meat it is appropriate to consider the effect of lowering the consumption of meat. Let us consider a lowering of meat intake from approximately 0.85 pound per man daily to less than one half that level—let us say to 0.4 pound, a decrease which is in the realm of theoretical possibility, although it would admittedly be at variance with the food habits and desires of the soldier. The outstanding effects would be to decrease the caloric intake by about 500, protein by about 30 Gm., phosphorus by 300 mg., iron by 4 mg., thiamine and riboflavin by 0.4 mg. each and nicotinic acid by about 10 mg. As far as the calories are concerned, there are many important sources, chief among which may be named the fats, the sugars and syrups and grain products. The decrease of 30 Gm. of protein would leave a level of 100 Gm., which is above the recommended daily allowance of the National Research Council. However, this loss could be offset by an increase of eggs and milk within the animal sources, and grain products and legumes in the nonanimal class. It is worthy of note that such increases would at the same time provide certain of the B vitamins. Whole grain products or enriched flour products would, however, be the most logical means of increasing the latter. Potatoes are also a good source of some of the B vitamins, particularly when consumed in quantity. It is a definite possibility, therefore, that the most practical way of offsetting a decrease in available meat products will be found to be by increasing the consumption of grains and potatoes.

These few examples have been concerned with common beliefs arising from a policy of limitation to a single or only a few food patterns. Not all of the possibilities have been discussed. For example, little has been said about the tenet "one pint of milk per day for every person" (although this is less easily changed than some of the other beliefs, since milk and milk products are most important for calcium and riboflavin). Without arbitrarily attempting to single out any one type of food, the possibility of attaining nutritional adequacy by the use of a number of food patterns has been demonstrated. On the other hand, it is recognized that in practice certain complicating factors may arise. Not the least important among these are the difficulty of changing established food habits, the matter of cost and the current availability of foods. These problems cannot be passed over lightly. However, the basic concept of providing proper nutrition without being bound to use certain foods every day still stands.

It is appropriate to mention briefly at this point the civilian habit of depending on vitamin pills and concentrates as an open sesame to proper nutrition. The following order is in effect for the military, and it appears to be equally applicable elsewhere:

". . . Vitamins are essential to the health, welfare and fighting efficiency of every soldier, but it is more desirable to obtain them in their natural form from foods consumed rather than through the use of synthetic products in tablet form. There is no evidence that vitamins in excess of daily requirements are useful. In the event vitamins are required in tablet or capsule form to supplement the ration, they will be furnished in accordance with the following instructions:

"No requisition for vitamin concentrates to supplement the ration should be submitted until a medical officer or nutritionist has analyzed the diet provided from the menu in use. The conclusions of such a review should be based on the nutritional value of the foods actually available and not merely on the absence of fresh foods. In the event it is determined that available foods are being properly prepared, served and consumed, and still a requirement for vitamins to supplement the ration exists, a requisition should be forwarded with a statement that the diet is inadequate and suitable foods cannot be obtained in quantities sufficient to meet vitamin requirements. Specific evidence of inadequacy should be cited. The requisition will state that the surgeon has approved the quantity required as appropriate for the strength and period involved."

It is true, on the other hand, that there may be certain occasions when vitamin supplementation to civilian diets may be indicated. It is not intended to frown on the use of accessory vitamins under all circumstances. However, their use should be predicated on the basis of a probable or possible deficiency in the diet as determined by a rough evaluation of the customary food habits involved. Routine use of such products is rarely necessary (except in disease or pregnancy and lactation), nor is it economical. This is particularly true when it is remembered that an excess of vitamins is discarded by the body and therefore is of no aid whatever to the individual.

SUMMARY

In recapitulation, it is possible to obtain a nutritionally complete diet in a number of ways. A knowledge of food classes and their approximate nutritional significance is a distinct aid in this regard and forms the basis for equivalent substitution of foods. While a single food pattern may be the practical solution in the attainment of adequate nutrition for the individual layman, yet it is quite unnecessary to gage the adequacy of a diet in regimented terms. Nutritional adequacy is attainable by a variety of means, and it is not necessarily restricted to one set food pattern. The intelligent use of foods presupposes a thorough knowledge of what, nutritionally speaking, the food group may be expected to contribute in normal times, as well as its potentialities when logistics or restriction of supply of certain types of food interfere with "the pattern." Our nutritive requirements are for nutrients, not for certain foods as such.

Food Likes and Dislikes.—Dressing up may overcome psychic aversion to a given food, but it will never disguise the effect if the patient belongs to that group of individuals who are sensitive or allergic to certain foods. One friend of mine was surprised to note when he ordered Scotch woodcock that it was not a bird. Another individual wanted to try frogs' legs and actually ordered them until some one suggested that frogs ate living things, even cockroaches, and so frogs' legs as a delicacy were debarred from her menu. Many persons discontinue eating a certain food because that particular food was the one they happened to be eating when an acute attack of indigestion occurred. The indigestion may actually have been biliary colic, with the food in question in no way responsible. Time and again one food after another may be cut out, reducing the diet to almost nothing because the ingestion of each food in turn was followed by pain. If the truth be told, the taking of only water will occasionally induce pain if a penetrating ulcer or a stone in the cystic duct is present.—Rehfuss, Martin E.: Indigestion: Its Diagnosis and Management, Philadelphia, W. B. Saunders Company, 1943.

A SOLVENT VAPOR, CARBON DISULFIDE

ABSORPTION, ELIMINATION, METABOLISM AND MODE OF ACTION

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Before the toxic symptoms elicited by a solvent vapor can be diagnosed and treated intelligently, it is helpful to know certain physiologic reactions of the compound. They are (1) the rate and extent of absorption into the individual's body, (2) the rate of excretion, (3) the rate and the amount of the compound metabolized by the body, (4) the site of action of the vapor and (5) in what manner the toxic action is elicited. In this paper we have attempted to give a partial answer to these questions as they apply to carbon disulfide (CS_2).

The absorption of any solvent vapor into the blood stream takes place primarily by way of the alveoli. The amount of vapor absorbed is regulated mainly by the vapor concentration breathed, the length of exposure and the coefficient of distribution [1] of the solvent between air and blood and between blood and tissues. This last point should be particularly stressed because further absorption of a volatile solvent does not take place after blood and tissue saturation, at a particular vapor concentration, has been reached, except as the compound is metabolized and excreted by channels other than the lungs. Furthermore, as Henderson and Haggard [2] have pointed out, the greater the solubility of a solvent vapor in blood and tissues the more rapid is the absorption, but the less rapidly is the saturation point reached. Conversely, the lower the solubility of a vapor in blood and tissues the more rapidly is the saturation point reached. In the case of a solvent vapor like ethyl alcohol, which has the high coefficient of distribution between air and blood of about 1150,[3] it is not possible for the body of a person to become saturated during a working day, or even by continuous exposure for several days. This would be true even if there were no oxidation of alcohol within the body. No matter what concentration of alcohol is breathed, absorption continues at a fairly constant rate over an extended period because the total amount of alcohol that can be supplied to the blood by way of the lungs is much lower than the amount of this substance that the blood and tissue can dissolve. A different situation exists with a relatively insoluble vapor, such as ether, which has a distribution coefficient between air and blood of 14.9.[4] According to the figures given by Haggard,[5] only sixty to one hundred and twenty minutes are required to saturate the body of a dog with ether when the vapor is present in a concentration of about 3 per cent by volume (30,000 parts per million). This means that less and less ether is absorbed with each succeeding breath and with each additional circuit of the blood through the body, until there is no further retention. The saturation point is then reached.

The elimination of a solvent vapor depends on several factors, most important of which are the solubility coefficient between blood and air and the amount of body oxidation and metabolism of the vapor. It has been proved [2] that the higher the solubility of a vapor the less rapidly is an organism desaturated after termination of the exposure, and the lower the solubility of the solvent vapor the more rapidly is the organism desaturated. With alcohol, the rate of removal by the lungs is slow, and were it not for a rapid rate of oxidation the desaturation rate following exposure to this substance would be extremely slow. With ether,[4] approximately 90 per cent is excreted in the expired air at a relatively rapid rate, and only small amounts are excreted in the urine and sweat. None of the ether is metabolized.

In a recent paper, one of us [6] showed that carbon disulfide is relatively insoluble, with a low blood-air coefficient of distribution of 2 to 3. In the same paper, the rate of absorption of carbon disulfide in dogs and the rate of elimination of the substance following cessation of exposure were found to be rapid. Experiments reported in the present paper confirm these observations on dogs and show similar rapid rates of absorption and elimination of carbon disulfide in man. Unlike ether, carbon disulfide is not excreted mainly by the lungs. Only 8 to 13 per cent is expired; about 0.5 per cent is excreted in the urine and none in the feces. The remaining 85 to 90 per cent is metabolized, largely by oxidation and by combination.

In the experiments to be reported in this paper, some insight has been obtained into the mechanism of the action of carbon disulfide. It is well known from the extensive literature on the subject and from Dr. Alice Hamilton's review,[7] that carbon disulfide absorbed in appreciable concentrations over a long period of time may result in damage to nerve tissue. Recent work by Lewey [8] indicated that vitamin B_1 may play some role in protecting against the action of carbon disulfide. In the study of a number of isolated enzyme systems essential for carbohydrate metabolism and, therefore, concerned with proper nerve function, we have found only the succinic-oxidase system to be partially inhibited by carbon disulfide.

RATE OF ABSORPTION AND ELIMINATION OF CARBON DISULFIDE

The rate of absorption and elimination of carbon disulfide was studied in 12 dogs and 5 men. The dogs were at rest during both saturation and desaturation,

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1. The "coefficient of distribution" for a vapor is a ratio of the amount of vapor at equilibrium which is distributed between a vapor air phase and an immiscible phase, for example, the vapor distribution between blood and air. This ratio, $\frac{\text{amount of vapor per unit volume of blood}}{\text{amount of vapor per unit volume of air}}$, is expressed as some whole number.

2. Henderson, Yandell, and Haggard, H. W.: Noxious Gases, New York, Chemical Catalogue Company.

3. Haggard, H. W., and Greenberg, L. A.: The Excretion of Alcohol in Urine and Expired Air; and the Distribution of Alcohol Between Air and Water, Blood and Urine, J. Pharmacol. & Exper. Therap. **52:** 150 (Oct.) 1934.

4. Haggard, H. W.: An Accurate Method of Determining Small Amounts of Ethyl Ether in Air, Blood and Other Fluids, Together with a Determination of the Coefficient of Distribution of Ether Between Air and Blood at Various Temperatures, J. Biol. Chem. **55:** 131 (Feb.) 1923.

5. Haggard, H. W.: The Amount of Ether Absorbed in Relation to the Concentration Inhaled and Its Fate in the Body, J. Biol. Chem. **59:** 737 (April) 1924.

6. McKee, R. W.: Solubility of Carbon Disulfide Vapor in Body Fluids and Tissues, J. Indust. Hyg. & Toxicol. **23:** 484 (Dec.) 1941.

7. Hamilton, Alice: Occupational Poisoning in the Viscose Rayon Industry, Bulletin 34, United States Department of Labor, Bureau of Labor Statistics, 1940.

8. Lewey, F. H., with the cooperation of others: Experimental Chronic Carbon Disulfide Poisoning in Dogs, J. Indust. Hyg. & Toxicol. **23:** 415 (Nov.) 1941.

while the men were at rest during saturation and were carrying on their normal laboratory work during desaturation. Carbon disulfide vapor of known concentrations was inhaled by the experimental subjects until the blood became saturated, as shown by periodic sampling and analysis. Exposure to the vapor was then

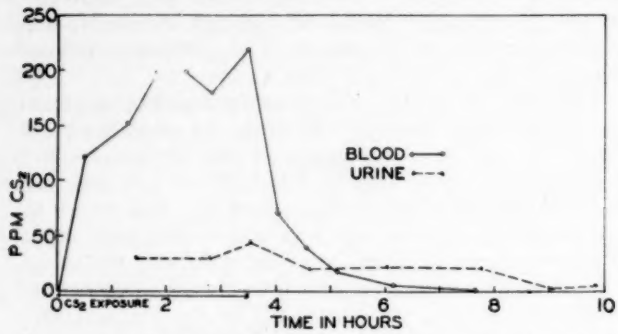

Chart 1.—Arterial blood saturation and desaturation and urinary excretion of carbon disulfide. Dog 2 exposed to carbon disulfide vapor (50 parts per million) for three and one-half hours.

terminated and the level of carbon disulfide in the blood followed periodically until analyses showed that little or none was present.

Experiments on Dogs.—All dogs employed in these experiments were anesthetized with soluble pentobarbital, and isotonic solution of sodium chloride (20 cc. per kilogram of body weight) was given intravenously. Following this, the trachea was cannulated and artificial respiration begun by connecting the trachea cannula with a respiration pump. The left femoral artery and vein were cannulated for recording of blood pressure and blood sampling.

In order to study quantitative elimination of carbon disulfide—a subject which will be discussed later—the urethra was tied off and the bladder was cannulated with a specially designed, glass stoppered cannula so that urine unexposed to air could be withdrawn at any time. This glass cannula had a stem 5 cm. long and 3 mm. in diameter and a ground-glass stopper. The lower end widened into a bulb 1 cm. in diameter with five 1 mm. openings to allow rapid filling from the bladder.

In each experiment a thirty minute control period for recording of blood pressure and respiration rate was taken. The bladder was emptied and control blood samples were taken. The carbon disulfide exposure was then started by connecting the trachea cannula to the respiration pump and thence to the source of vapor. With the last 4 dogs studied, the pump was not used and the animals maintained a normal respiratory rate. The results are similar to those on animals maintained with the pump. Not in any case was there a noticeable change in blood pressure, heart rate, respiratory rate, respiratory volume or body temperature during the entire experiment. The values were all normal.

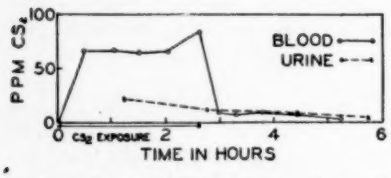

Chart 2.—Arterial blood saturation and desaturation and urinary excretion of carbon disulfide. Dog 6 exposed to carbon disulfide vapor (25 parts per million) for two and one-half hours.

The carbon disulfide vapor was generated at a constant rate by a vapor generator described in a previous paper.[9] The constancy of the vapor concentration, as determined by analysis every thirty minutes, was within ± 1 part per million of an acceptable figure. The vapor was blown into an air-tight metal mixing reservoir with an outlet tube to allow the escape of excess vapor. Neoprene tubing (⅝ inch in diameter) was used to connect the vapor reservoir, the respiration pump and the inhalation trachea valve. The exhalation trachea valve used for the last 4 dogs was connected with ⅝ inch neoprene tubing to two calibrated spirometers connected in parallel. The trachea valves were connected as closely as possible to the trachea cannula, so that the dead space was about the same as in the intact animal. The valves used were a hinged flap type and all-metal contruction to prevent absorption of carbon disulfide.

The blood carbon disulfide level was followed by analysis of blood samples collected every thirty to sixty minutes.[10] Arterial blood (10 cc.) was taken from the femoral artery cannula and venous blood (10 cc.) taken directly from the femoral vein by means of 10 cc. calibrated syringes. As indicated previously, when the blood carbon disulfide level became constant, exposure was stopped. Blood sampling was then continued until only a negligible amount of carbon disulfide remained in the blood.

Charts 1, 2 and 3, which are representative of all 12 dogs studied, show that blood saturation was reached within thirty to one hundred and twenty minutes. Occasional venous blood analyses (chart 3) showed, at the cessation of exposure, a condition close to tissue saturation. As would be expected from the limited capacity of the lungs to supply vapor to the blood, the higher concentrations of vapor required somewhat longer periods to attain saturation.

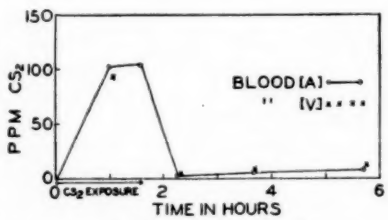

Chart 3.—Venous and arterial blood saturation and desaturation. Dog 3 exposed to carbon disulfide vapor (40 parts per million) for one and one-half hours.

The major part of desaturation took place within thirty to sixty minutes (charts 1, 2 and 3) and at a slightly faster rate than saturation; however, the removal of final traces of carbon disulfide required an additional two to six hours (table 1). This time, as would be expected from a theoretical consideration, was usually somewhat longer with the higher exposure concentrations. There was, however, apparently no prolongation of the desaturation time with the longer exposures. This is to be expected from the fact that only small amounts of a solvent are absorbed after the saturation point is reached.

Human Experiments.—Studies similar to those on dogs were made on 5 normal men. Exposures necessarily were at a lower concentration for men than for dogs. None of the subjects noticed any immediate or belated effects from the vapor exposures. In each case, the blood pressure, heart rate and respiratory rate were all normal throughout the experiment. Generation of vapor was effected in the same way as in the experi-

9. Reece, G. M.; White, Ben, and Drinker, Philip: Determination and Recording of Carbon Disulfide and Hydrogen Sulfide in the Viscose Rayon Industry, J. Indust. Hyg. & Toxicol. **22**: 416 (Nov.) 1940.

10. McKee, R. W.: A Quantitative Microchemical Colorimetric Determination of Carbon Disulfide in Air, Water and Biological Fluids, J. Indust. Hyg. & Toxicol. **23**: 151 (April) 1941.

ments on dogs. Neoprene tubing (1 inch in diameter) was connected to the vapor reservoir with the subject's metal inspiratory valve and plastic face mask. The same type of tubing connected the mask and metal outlet valve to a gas meter for measuring the respiratory volume. Samples of expired air were taken at intervals to show the course of carbon disulfide removal in the expired air, and these corresponded well with blood values. Only venous blood was examined.

With the men as with the dogs, blood saturation was reached rapidly (sixty to ninety minutes), after which only a small amount of carbon disulfide was absorbed, and that only as the carbon disulfide was metabolized and excreted. At the termination of exposure, there was rapid desaturation for the first sixty minutes. Desaturation, as shown by urine and expired air values,

TABLE 1.—*Blood Carbon Disulfide Saturation and Desaturation Rates in Dogs*

Animal	Sex	Weight, Kg.	Exposure Concentration, P.p.M.	Exposure Time, Hours	Saturation Time, Hours	Blood Saturation, P.p.M.	Desaturation Time, Hours *	Total CS_2 Excreted in Urine, Mg.
2	♀	8	50	3.5	1.75	200	4.25	0.006
3	♂	11	60	2.5	2.0	250	6.25	0.005
4	♂	14	50	2.5	1.25	135	3.75	0.004
5	♀	..	25	2.5	1.25	50	3.75	0.002
6	♂	10	25	2.7	0.5	65	2.5	0.002
7	♂	9	25	5.2	1.5	150	3.5	0.003
8	♀	15	35	4.0	0.75	100	3.0	0.004
10	♂	10	35	2.4	0.75	135	3.0	.....
11	♀	..	25	2.4	1.0	105	3.0	.....
12	♂	15	30	1.25	0.75	100	2.25	.....
13	♂	11	40	1.6	1.0	105	3.5	.....
14	♂	8	30	0.8	0.75	55	4.0	.....

* Time after exposure was terminated.

TABLE 2.—*Blood Carbon Disulfide Saturation and Desaturation Rates in Man*

Human Subject	Body Weight, Kg.	Comment	Exposure Concentration, P.p.M.	Exposure Time, Hours	Saturation Time, Hours	Blood Saturation, P.p.M.	Desaturation Time, Hours *	Total CS_2 Excreted in Urine, Mg.
1	60	Slender	20	2.1	1.0	55	8.25	0.029
2	93	Fleshy	25	1.75	1.3	50	5.5	0.014
3	64	Muscular	25	1.5	1.0	40	6.75	0.010
4	77	Tall	20	1.5	1.0	45	5.0	0.009
5	66	Slender	25	2.0	1.5	65	3.0	0.005

* Time after exposure was stopped.

was complete after three to eight hours. Charts 4 and 5 are representative of all 5 subjects, while critical data for all 5 are shown in table 2.

In a number of other human experiments, not shown in this paper, the rates of saturation and desaturation were somewhat increased by exercise. This of course does not affect the saturation level—only the rate at which it is attained.

TOTAL AMOUNT OF CARBON DISULFIDE ABSORBED AND ELIMINATED

Although the dog and human saturation and desaturation curves show the rates of absorption and elimination, they do not show the quantities of carbon disulfide which were handled. In order to arrive at a quantitative estimation of the amounts involved, the following four determinations were made:

1. Concentration of vapor breathed.
2. Carbon disulfide in the total expired air during saturation.
3. Carbon disulfide in the total expired air during desaturation.
4. Total carbon disulfide in the urine.

By calculation, it was then possible to determine the amount of carbon disulfide retained during the exposure period and the amount eliminated by way of the expired air during desaturation. By the collection and analysis of urine, the amount excreted by that pathway was determined.

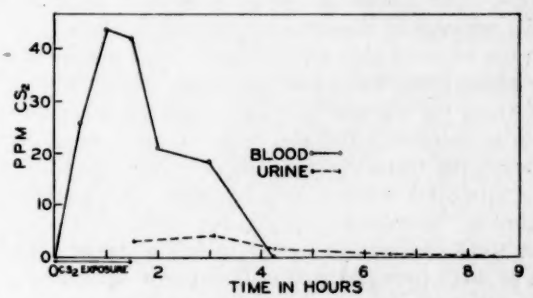

Chart 4.—Venous blood saturation and desaturation and urinary excretion of carbon disulfide. Human subject 37 exposed to carbon disulfide vapor (22 parts per million) for one and one-half hours.

Experiments on Dogs.—In order to collect the total volume of expired air over the extended period of the experiments, two spirometers were connected in parallel. This arrangement permitted the analysis and emptying of the contents of one spirometer while the second was being filled. The spirometers were calibrated for dead space and water solubility with known concentrations of carbon disulfide vapor.

In all cases, expired air was collected until no more carbon disulfide was found to be present. Samples of the urine were removed from the bladder through the glass stoppered cannula by means of a syringe and long needle.

Table 4 shows the determined and calculated results for the saturation and desaturation periods. The data presented include length of exposure, exposure concentration of vapor, amount of carbon disulfide inspired, amount of carbon disulfide retained, percentage retained, length of time for desaturation, amount of carbon disulfide removed in expired air and percentage removed of that retained. It is of interest to note that only 8 to 13 per cent of the retained carbon disulfide is removed in the expired air. It is of interest also that the carbon disulfide excreted in the urine is only about 0.5 per cent of the total amount retained (table 1).

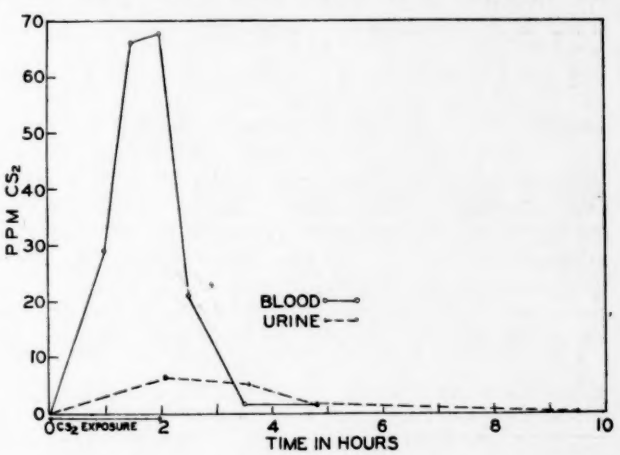

Chart 5.—Venous blood saturation and desaturation and urinary excretion of carbon disulfide. Human subject 38 exposed to carbon disulfide vapor (23 parts per million) for two hours.

Human Experiments.—The large volume of air breathed by a man during the relatively long time required to saturate his blood with carbon disulfide and then desaturate it made long exposure periods impractical. Shorter exposure periods were, however, studied by a procedure similar to that used in the experiments on dogs. The results, as shown in table 3, indicate that 6 to 10 per cent of the retained carbon disulfide is given off in the expired air—percentages which are similar to those obtained in the experiments on dogs. It will be noted from the figures in table 3 that as the exposure time was increased and the body became more nearly saturated, the retention percentage decreased; also, following the termination of exposure, the percentage excreted in the expired air was increased.

The total amounts of carbon disulfide present in the urine of the 5 human subjects during the saturation and desaturation periods accounted for only about 0.5 per cent of the retained carbon disulfide (table 2).

METABOLISM OF CARBON DISULFIDE: COMBINATION AND OXIDATION

It has been demonstrated that 8 to 13 per cent of the retained carbon disulfide is excreted in the expired air and that less than 1 per cent appears in the urine. The next logical question to be asked concerning carbon disulfide excretion is What happens to the remaining 85 to 90 per cent of the retained carbon disulfide? Obviously the question of excretion in the feces and sweat must be considered. Human fecal material, collected for twenty-four hours during and following vapor exposure, yielded no carbon disulfide on analysis. Although absorption and elimination by the skin were not studied, we believe that little carbon disulfide would be removed by way of the sweat because of the low solubility of carbon disulfide in aqueous fluids. It is therefore clear that the 85 to 90 per cent of retained carbon disulfide which is unaccounted for must be metabolized in some manner.

It should be remembered that in the estimation of carbon disulfide in urine and feces only volatile carbon disulfide is determined. Hence any nonvolatile combination compound or oxidation product would not be detected. It was this type of metabolite that we next considered in studying the elimination of carbon disulfide, namely possible combination products of carbon disulfide with amines and ammonia and/or carbon disulfide oxidation to sulfuric acid and excretion as inorganic sulfates.

TABLE 3.—*Quantitative Carbon Disulfide Absorption and Elimination by Human Subjects*

Human Subject	Sex	Body Weight, Kg.	Exposure Concentration, P.p.M.	Exposure Time, Minutes	No. of Determinations	Retention Mg.	Retention Per Cent	Excretion in Expired Air, per Cent
1	♂	57	22	10	2	2.65	42.7	6.4
			14	20	1	5.28	42.6	7.3
			22	30	1	6.75	36.3	11.8
6	♀	48	23	10	2	1.94	44.5	4.4
			25	20	1	3.47	39.9	8.7
			22	30	1	4.80	36.8	...
7	♂	82	23	10	2	3.15	42.3	5.4
			21	20	1	6.32	42.4	4.9
			16	30	1	8.83	39.5	6.1

Both urine and fecal materials were analyzed for inorganic sulfates, total sulfates and total sulfur in an attempt to ascertain whether there was any increase in sulfur metabolites during and following exposure to carbon disulfide.

Human Studies.—In order to maintain the urinary sulfates as constant as possible, the subject went for five days on a diet of constant protein, fat and carbohydrate intake. Special note was taken of the protein, since it is this dietary constituent principally which influences the urinary sulfates. The total urine output was collected in six to twelve hour samples, and duplicate analyses were made by Fiske's modification of the Rosenheim and Drummond method[11] for inorganic sulfate sulfur, total sulfate sulfur and total sulfur. Similar analyses were made on aqueous extracts of feces collected for twenty-four hours during and following exposure to carbon disulfide. After two days on the constant diet the subject was exposed for six hours in a vapor chamber to carbon disulfide (25 parts per million).

TABLE 4.—*Quantitative Carbon Disulfide Absorption and Elimination by Male Dogs*

		Saturation Period					Desaturation Period	
			CS_2 Administered		CS_2 Retained			CS_2 Removed in Expired Air
Dog	Body Wt., Kg.	Length of Exposure, Hours	P.p.M.	Mg.	Mg.	Per Cent	Time, Hours	Mg.	Per Cent
10	4.6	2.4	35	36.60	9.53	23	3.0	1.00	10.5
12	6.8	1.25	30	18.32	11.48	63	2.25	1.10	9.5
13	5.0	1.6	40	21.70	9.03	41	3.5	0.71	7.9
14	3.6	0.8	30	9.17	3.05	33	4.0	0.39	12.8

As shown in table 5, there was some increase both in the inorganic sulfates of urine and in the total sulfur. The fact that the total sulfur increase was about the same as the inorganic sulfate increase indicates that there was an increase only in the urinary inorganic sulfates. Whether or not this increase accounts for the remainder of the retained carbon disulfide cannot be stated with accuracy. Calculated on the basis of body saturation being reached for 25 parts per million in sixty minutes and based on a 40 per cent retention during the period (table 4), the increased sulfur in the urine during exposure and for twenty-four hours following exposure accounts for about 90 per cent of the retained carbon disulfide.

Fecal analyses showed no increase above normal for any of the three sulfur constituents.

Studies on Rabbits.—Metabolism experiments, similar to those cited, were conducted on 2 rabbits. One rabbit was injected with 2 cc. of carbon disulfide in vegetable oil, while the other was exposed to carbon disulfide (2,000 parts per million) for sixty minutes.

As shown in table 6, in both animals there was a decided increase of urinary inorganic sulfates and total sulfur, and the latter increase was more than the inorganic sulfate increase. This means that some carbon disulfide combination product, an organic compound, was also being excreted in the urine. This we believe is probably a combination product of carbon disulfide with an amine or ammonia in the blood stream or in the body tissues.

In these rabbit experiments it was even more difficult than in the ones on human beings to determine whether

11. Fiske, C. H.: The Determination of Inorganic Sulfate, Total Sulfate and Total Sulfur in Urine by the Benzidine Method, J. Biol. Chem. **47**: 59 (June) 1921.

or not all the retained carbon disulfide was accounted for. This was especially true of the injected animal because we do not know how much carbon disulfide was excreted in the expired air.

A calculation similar to the one used in the human experiments indicated that only about 25 per cent of the retained carbon disulfide was metabolized during the twenty-four hours following exposure. This would be expected from the exceedingly high concentration administered and the logical conclusion that there is a limit to the mechanisms of detoxification in the animal body.

The important fact is that there are probably at least two mechanisms for detoxifying carbon disulfide; i. e., oxidation and combination.

It is important to point out here that the actual amount (in milligrams) of carbon disulfide retained during a day's exposure is quite small, even with the higher concentration studied in the animals. For this reason it is extremely difficult to follow accurately the metabolites excreted in a fairly large volume of urine over a number of hours. Studies with carbon disulfide containing radioactive sulfur are being considered in an effort to determine quantitatively the carbon disulfide metabolized and the rate of metabolic excretion.

MODE OF ACTION OF CARBON DISULFIDE

The belief in the past has been that the toxic effects of carbon disulfide are due largely to its solvent action on the lipids of the nervous system. The fact that nerve tissues may be damaged at relatively low concentrations of carbon disulfide (a few tenths of a milligram per kilogram of tissue) indicates that something other than a solvent action is responsible. We have attempted to obtain an insight into the mechanism of action of carbon disulfide by a systematic survey of the effect of carbon disulfide on various known types of enzyme systems in the animal body. Warburg manometric experiments on isolated tissue enzyme systems indicate that at least one system important in carbohydrate oxidation is somewhat impaired. Inhibition of such systems is of paramount importance and may help to explain the nervous syndromes produced by carbon disulfide, because nerve tissue depends on energy derived from carbohydrate metabolism.

TABLE 5.—*Sulfur Content of Human Urine Following Inhalation of Carbon Disulfide*

Day	Period, Hours	Urine Volume, Cc.	Inorganic Sulfate Sulfur, Gm.	Total Sulfate Sulfur, Gm.	Total Sulfur, Gm.	Inorganic Total Ratio
Sunday.....	24*	...	.....	.....	.....	.....
Monday.....	12	703	0.340	0.362	0.450	0.939
	12	316	0.225	0.234	0.269	0.962
Total.....	24	1,019	0.565	0.596	0.719	
Tuesday.....	24	657	0.531	0.559	0.687	0.950
Wednesday.....	12†	258	0.151	0.169	0.188	0.894
	12	469	0.444	0.462	0.511	0.961
Total.....	24	727	0.595	0.631	0.699	
Thursday.....	12	402	0.323	0.343	0.398	0.942
	12	323	0.323	0.334	0.349	0.967
Total.....	24	725	0.646	0.677	0.747	
Friday.....	12	335	0.287	0.306	0.330	0.938

* On constant diet but urine not collected.
† Exposed to 28 parts per million during first six hours.

Among the systems studied at the present time the succinic oxidase enzyme system is the one most inhibited, showing a 10 per cent decrease in activity when a carbon disulfide concentration of 0.005 molar has been reached. This inhibition may be a possible explanation for the action of carbon disulfide on nerve tissue. The systems in which vitamin B_1 functions—pyruvic acid oxidase and pyruvic acid decarboxylase, also lactic acid dehydrogenase—were not inhibited by concentrations of carbon disulfide as large as 0.007 molar. These isolated enzymes studied are being extended to in vivo experiments (laboratory animals and human beings).

TABLE 6.—*Sulfur Content of Rabbit Urine Following Exposure to Carbon Disulfide*

Rabbit	Number of Days of Urine Collection	Inorganic Sulfate Sulfur, Mg.	Total Sulfate Sulfur, Mg.	Total Sulfur, Mg.	Inorganic Total Ratio
Normal.....	7	28.18	38.42	50.52	0.73
2 cc. CS_2 injected	2	39.30	50.15	71.15	0.78
Normal.....	7	16.79	28.15	36.96	0.60
2,000 p.p.m. CS_2 for 100 minutes	2	33.90	46.90 *	68.80	0.72

COMMENT

The uses of solvents in present day industry are rapidly increasing and extending to new types of compounds. With this increase in the utilization of solvents there arises the necessity for a broader understanding of control methods and therapeutic measures in order to prevent the occurrence of damage to the worker absorbing toxic vapors in untoward quantities. Such an understanding involves a detailed knowledge of the medical aspects of the physiologic action of solvent vapors. In this paper we have considered some of the more important of these problems for carbon disulfide and have indicated possible approaches for the study of other volatile solvents. As stated previously, these are (1) the rate and extent of absorption into the individual's body, (2) the rate of excretion, (3) the rate and the amount of the compound metabolized by the body, (4) the site of action of the vapor and (5) the manner in which the toxic action is elicited.

A study of the rate of vapor absorption is important because it makes possible a determination of the amount obtained during the exposure time of a working day or the dose with which one has to cope. Admittedly small quantities of certain vapors are absorbed by way of the skin; however, the major portion of most vapors enters the blood by way of the alveoli from the inspired air.

The rate of elimination is an aid in determining the length of time that the compound remains in the body and therefore a measure of the time that the compound may act on the organism. In regard to these two aspects, the solubility of the vapor in water and lipids is of extreme importance. Thus a water insoluble compound like carbon disulfide rapidly saturates the body, which is about 70 to 75 per cent water, and ceases to be absorbed, except as excretion and metabolism progress. On the other hand, a water soluble compound, for instance ethyl alcohol, requires manifoldly greater quantities of the vapor and correspondingly longer periods of time to saturate the body.

Metabolism of a solvent vapor is a further important consideration, since it furnishes another pathway for removal of the noxious material from the body, thus facilitating excretion. There is, in addition, the possibility that the metabolic products may be less toxic than the original vapor.

Consideration of the mode of action of the toxic material is of paramount importance, since it will indicate the site of action and mechanism of reaction, which may in turn lead to the discovery of preventive and therapeutic measures.

SUMMARY AND CONCLUSIONS

Laboratory animal, human and in vivo tissue experiments on the absorption, elimination, metabolism and mode of action of carbon disulfide show the following results:

1. Saturation of the body with the relatively insoluble solvent vapor of carbon disulfide is quite rapid, requiring from thirty to sixty minutes. The necessary time interval depends largely on the exposure concentration and is longer with higher concentrations.

2. The major part of the elimination of retained free carbon disulfide takes place in the first thirty minutes; complete desaturation, however, requires three to eight hours. The rate of desaturation, like the rate of saturation, depends to a large degree on the exposure concentration, a longer time being required with a higher concentration.

3. No matter how high the exposure concentration, a saturation point is reached beyond which there is no further absorption of carbon disulfide except as it is metabolized and excreted in the urine.

4. Of the retained vapor, about 8 to 13 per cent is excreted in the expired air, about 0.5 per cent in the urine and none in the feces.

5. The remaining 85 to 90 per cent of carbon disulfide is probably accounted for as metabolites (inorganic sulfates and organic sulfur compounds) excreted in the urine.

6. No free or metabolized carbon disulfide is found in the feces.

7. In vitro manometric experiments show that carbon disulfide in relatively large quantities inhibits slightly the succinic oxidase enzyme system, important in intermediate carbohydrate oxidation and normal nerve tissue metabolism. The pyruvic acid oxidase, pyruvic acid decarboxylase and lactic acid dehydrogenase systems which involve vitamin B_1 were not inhibited by carbon disulfide.

Indigestion of Old Age.—One of the rules with regard to indigestion in old age is to reduce the diet gradually. If an active sedentary man consumes 2,400 to 3,000 calories a day, a person 55 to 65 should be able to get along on 1,800 to 2,000 calories a day. I have repeatedly attempted to determine the calory intake of certain people, even octogenarians; and I learned that many of them consumed 2,400 calories or more and only do so because they seem to have intact eliminatory organs. We are inclined to look at old age as a progressive disorder resulting in gradual thickening of the vessels and loss of the cardiac reserve. Many of these people show evidence of kidney damage by gradual failure in urinary concentration with nocturia as a result.—Rehfuss, Martin E.: Indigestion: Its Diagnosis and Management, Philadelphia, W. B. Saunders Company, 1943.

DEMEROL—A NEW SYNTHETIC ANALGESIC

A REVIEW OF ITS PRESENT STATUS AND COMPARISON WITH MORPHINE

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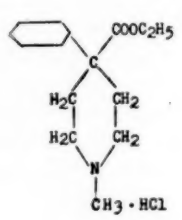
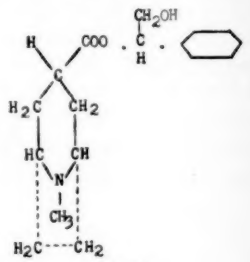
The increased need for morphine in time of war and the present threat to our opium supply make it important that appropriate consideration be given to the new analgesic Demerol, for this compound can be prepared synthetically from available chemicals. Although it has been used in this country by only a few investigators and only recently was released by the Food and Drug Administration, considerable knowledge has accumulated concerning its pharmacology and clinical usefulness. It is therefore considered advisable to present at this time a review of present knowledge on Demerol with especial reference to its pharmacology, clinical uses and safety in comparison with morphine.

Demerol (1-methyl 4-phenyl-piperidine 4-carboxylic acid ethyl ester hydrochloride) was synthesized in 1939



Demerol.



Atropine.

by Eisleb and Schaumann.[1] It represents one of a large group of piperidine compounds possessing spasmolytic properties. Its close similarity to atropine can be discerned on inspection of the chemical formulas.

It is therefore not surprising that Demerol possesses mild atropine-like properties. Of greater interest, however, was the unexpected finding that the drug had a morphine-like effect on the central nervous system of animals. Definite analgesia comparable to that of morphine without the occurrence of a striking depression of the central nervous system has been reported.[2] While close chemical similarity of morphine and Demerol is difficult to visualize in a flat plane, it is possible with molecular models to discern similarities involving particularly the piperidine ring.

THREE ACTIONS OF DEMEROL

Demerol possesses three main actions: analgesia, spasmolysis and sedation. The relative analgesic effect as compared with codeine and morphine can be demonstrated by the method of Hardy, Wolff and Goodell.[3]

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2. Schaumann, O.: Ueber eine neue Klasse von Verbindungen mit spasmolytischer und zentral analgetischer Wirksamkeit unter besonderer Berücksichtigung des 1-Methyl-4-phenyl-piperidin-4-carbonsäure-athylesters (Dolantin), Arch. f. exper. Path. u. Pharmakol. **196:** 109, 1940.

3. Hardy, J. D.; Wolff, H. G., and Goodell, H.: Studies on Pain: A New Method for Measuring Pain Threshold: Observations on Spatial Summation of Pain, J. Clin. Investigation **19:** 649 (July) 1940.

The administration of 100 mg. of Demerol orally results in an elevation of the peripheral pain threshold within fifteen minutes, reaches a peak of approximately 50 per cent at the end of one hour and gradually subsides in about six hours.[4] Intramuscularly the effect appears within ten minutes, reaches its peak in forty-five minutes and persists for several hours. By this method 50 mg. of Demerol intramuscularly was found [4] to be approximately twice as potent as 22 mg. of codeine. Similarly, 125 mg. of Demerol approaches the effectiveness of 17 mg. of morphine but does not persist as long.

The practical use of this effect in man has been applied to the relief of pain due to a large variety of conditions.[5] The duration of analgesia is about three hours. Visceral pain such as that arising from the peritoneum, pleura or smooth muscle is relieved more effectively than pain arising from skeletal and neurologic structures. Data on the comparative analgesic effectiveness of Demerol and morphine are given in table 1.

Demerol administered parenterally is at least as effective as morphine in producing clinical analgesia. Comparative studies [6] on the same patient would indicate that 100 mg. of Demerol parenterally is equivalent to 10 mg. of morphine. This observation is likewise borne out from the data presented in table 1. Oral administration of Demerol is less satisfactory than parenteral administration, perhaps because of variations in absorption. The incidence of side reactions is higher in ambulatory patients who receive the medication by mouth. Nevertheless the oral route is useful and yields satisfactory results.

In postoperative patients, Batterman and Mulholland [7] have reported that Demerol is a more suitable drug than morphine or its derivatives. The reasons for this will become evident as the pharmacology of the drug is discussed. The value of Demerol in surgical conditions has been reported also by other investigators.[8] Satisfactory use of Demerol for analgesia in obsetric patients has been found by Benthin,[9] Gilbert and Dixon,[10] Sonnek,[11] Roby and Schumann [12] and Studdiford and Batterman.[13]

The second important action of Demerol is its general spasmolytic effect in man. Intubation studies [6] have demonstrated this action on the stomach, pylorus and small and large intestine of human subjects. The effect is due to an atropine-like action on the parasympathetic nerve endings and a papaverine-like direct depresssion of smooth muscle.[14] In direct contrast to the action of opiates, the motility of the intestine is so influenced that the segmental contractions and tone are diminished or abolished, while propulsive action is unaltered. Clinically this action is manifested by the rapid and often dramatic relief of colicky pain. Prolonged use of the drug in therapeutic doses does not result in constipation. Hence Demerol is of little value in the treatment of diarrhea and cannot replace opiates for this purpose. Thus it would appear that Demerol has definite spasmolytic action in man.

Experiments, however, on the gastrointestinal tract of animals have yielded variable results, depending on the segment (whether isolated or in situ), the species of animal used and the method of study. These have been summarized in table 2.

TABLE 1.—*Comparative Analgesic Effectiveness of Demerol and Morphine*

Medication	Route	Number of Patients	Number of Doses	Average Dose, Mg.	Adequate Analgesia, per Cent	Slight or No Analgesia, per Cent
Morphine..... Lee, L. E., Jr.: J. Pharmacol. & Exper. Therap. **75:** 161 (June) 1942	Subcutaneous	776	4,571	9.6	96.7	3.3
Demerol..... Batterman [6]	Subcutaneous	881	10,320	100	95.8	4.2
Morphine..... Lee	Oral	3	1,826	11.6	92.4	7.6
Demerol..... Batterman	Oral	604	10,581	50-100	84.3	15.7

In contrast to the effect of morphine, an antispasmodic response on the intact ureter by Demerol has been demonstrated in animals and man by Climenko and Berg.[15] The relief to patients with renal and ureteral colic is thus explained by experimental evidence.

Studies on intact and excised uteri revealed relaxation,[16] but this was refuted by Gruber and his associates [17] and by Yonkman.[18] The administration of Demerol in doses of 100 to 400 mg. over a period of two to four hours to pregnant women neither altered the rhythmic contractions nor delayed labor.[19] On direct studies of the pregnant human uterus with a balloon, Woodbury and his associates [20] found no effect on uterine contractions.

4. Barlow, O. W.: Studies on the Pharmacology of 1-Methyl-4 Phenylpiperidine-4-Carbonic Acid Ethyl Ester (D-140, Demerol): I. Analgesic Action; II. Pharmacology, Toxicology and Addiction Liability, submitted for publication; personal communication to the authors.

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Klein, E. K.: Erfahrungen mit Dolantin, einem myotrop und neurotrop wirkenden Spasmolytikum, München. med. Wchnschr. **86:** 1674 (Nov 24) 1939.
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Dolle,[8] Rosenthal,[8] Schäfer,[8] Schlungbaum,[8] Althoff,[21] Batterman,[6] Batterman and Mulholland,[7] Davis,[21] Hecht, Noth and Yonkman,[8] Weinstein.[8]

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11. Sonnek, W.: Geburtserluchterung durch Dolantin, Deutsche med. Wchnschr. **67:** 868 (Aug. 8) 1941.

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13. Studdiford, W. E., and Batterman, R. C.: Work still in progress.

14. Schaumann.[2] Barlow.[4] Duguid and Heathcote[20]

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16. Dreyer, N.: Personal communication to the authors. Schaumann.[2] Barlow.[4] Duguid and Heathcote.[20]

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19. Benthin.[9] Gilbert and Dixon.[10] Roby and Schumann.[12] Studdiford and Batterman.[13]

20. Woodbury, R. A.: Personal communication to the authors.

An antispasmodic effect on bronchial musculature was noted in animal experiments by Schaumann,[2] Gruber [17] and Barlow.[4] Clinically beneficial effects in patients with bronchial asthma have been reported by several investigators.[21] It is well known that the use of morphine is contraindicated for such patients. Ambulatory asthmatic patients have fewer and less severe attacks when Demerol is administered every four hours. An acute attack of asthma can be relieved within ten minutes by the subcutaneous injection of 35 mg., a dose far below that required to produce analgesia or sedation. The bronchial relaxation is less than that achieved with epinephrine. Nevertheless Demerol probably has a theoretical advantage as an antiasthmatic agent, since it would tend to reduce the autonomic reactions usually associated with a severe attack. Epinephrine would heighten the fear component even though the asthma was relieved. Good results have been obtained with a generally free from untoward reactions of this character. Because intravenous administration results in a sharp fall in blood pressure, the drug should never be given by this route. Direct cardiac depression does not occur with therapeutic doses, and the normal electrocardiogram is unaltered.

The third action of Demerol to be considered is sedation. This usually occurs with the larger parenteral doses, resulting in sleep from which the subject can be aroused easily. It usually subsides within two hours, but when the drug is given at night or to patients who have been sleepless because of pain the sleep may last longer. Patients note no after-reactions or mental confusion on awakening. Ambulatory patients may complain of drowsiness at first, but tolerance is developed to the sedative effect.

Like morphine, Demerol in animals potentiates the hypnotic effect of evipal soluble,[25] shortens the induction

TABLE 2.—*Effect of Demerol on Gastrointestinal Tract of Animals: Summary of Literature*

Animal	Segment	Preparation	Previous State	Effect	Observer
Guinea pig	Intestine	Isolated strip	Quiescent	Spasmolytic	Schaumann [2]
			Spastic (acetylcholine, histamine)	Spasmolytic	Duguid and Heathcote [29]
Rabbit	Ileum	Isolated strip	Quiescent	Spasmolytic	Barlow [4]
				Slightly spasmolytic	Duguid and Heathcote [29]
				Unpredictable—spasmolytic or spasmodic depending on original tonus level	Gruber et al.;[17] Yonkman [18]
			Spastic (pilocarpine, physostigmine, histamine, barium chloride)	Spasmolytic	Barlow [4]
			Spastic (acetylcholine)	Slightly spasmolytic	Duguid and Heathcote [29]
			Spastic (acetylcholine, barium chloride)	Spasmolytic	Gruber et al.[17]
			Relaxed (epinephrine)	Spasmodic	Gruber et al.[17]
Cat	Ileum	Isolated strip	Quiescent	Unpredictable	Gruber et al.[17]
		Gut in situ (Babkin technic)	1. Splanchnic cut, vagi intact	Spasmolytic	Dreyer [16]
			2. Morphine	Reversal of morphine effect and prevention of subsequent morphine response	
Dog	Stomach	Gastric fistula	Quiescent	Unpredictable	Gruber et al.[17]
	Pylorus	Gastric fistula	Quiescent	Spasmodic	Gruber et al.[17]
	Ileum	Thiery-Vella loops	Quiescent	Spasmodic	Gruber et al.;[17] Yonkman [18]
		Thiery-Vella loops	Morphine	No effect	Gruber et al.[17]
		Thiery-Vella loops		Spasmolytic; reversal of morphine effect	Yonkman [18]
	Colon	Colostomy opening	Quiescent	No effect	Ivy, A. C.: Personal communication

mixture consisting of 35 mg. of Demerol and half the usual amount of epinephrine.[22]

The vasodilating properties of the drug are transitory. In animals Demerol produces a fall in blood pressure,[23] an increase in volume of the limb and spleen [17] and an increase in blood flow.[24] In man, demonstrable alterations of the circulation are not pronounced except in hypersensitive persons in the upright position. Thus approximately 5 per cent of ambulatory patients may experience syncope, a fall in blood pressure, bradycardia and signs and symptoms of shock suggestive of generalized vasodilatation and inability to maintain the circulation ("nitritoid" reaction). These usually subside quickly when the supine position is assumed. The administration of the drug to recumbent subjects is time and prolongs the anesthetic time of a given amount of nitrous oxide-oxygen.[4] Rovenstine and Batterman [26] reported on the ability of Demerol to reduce the amount of inhalation agent required to secure a certain degree of anesthesia in dogs and to prolong the effect of pentothal sodium. In a series of 338 surgical patients requiring a general or spinal anesthetic, Demerol was found [26] to be in every way as satisfactory a preanesthetic agent as morphine. With the exception of hypersensitive persons, particularly those with advanced cerebral arteriosclerosis, respiratory depression is not usual with the use of Demerol. In animals, however, transitory respiratory depression has been reported by all investigators,[23] and large intravenous doses may result in death by respiratory paralysis. It is of interest to note that in man Demerol has little if any sedative

21. Althoff, H.: Klinische Erfahrungen mit Dolantin-Bayer, Therap. d. Gegenw. **6**: 258, 1939. Davis, J. S.: Personal communication to the authors. Hecht, Noth and Yonkman.[8] Batterman, R. C.: Work still in progress.

22. Batterman, R. C.: Work still in progress.

23. Schaumann.[2] Barlow.[4] Duguid and Heathcote.[29] Gruber, Hart and Gruber.[17]

24. Fassett, D. W.: Personal communication to the authors.

25. Barlow, O. W.; Climenko, D. R., and Homburger, E.: Comparative Potentiating Effects of Certain Therapeutic Agents on Sodium Evipal Hypnosis, Proc. Soc. Exper. Biol. & Med. **49**: 11 (Jan.) 1942.

26. Rovenstine, E. A., and Batterman, R. C.: The Utility of Demerol as a Substitute for the Opiates in Preanesthetic Medication, Anesthesiology **4**: 126 (March) 1943.

effect on cough, although because of its atropine-like action an occasional patient may be benefited by its decreasing the bronchial secretions.

Other pharmacologic studies reveal no effect on the size of the pupil or ocular accommodation in man. Corneal anesthesia may occur. The basal metabolic rate is unaltered. Dryness of the mouth, flushing of the face and perspiration are common findings. Dizziness occurs as the most frequent untoward reaction. Nausea and vomiting are noted less frequently than with morphine.

TOLERANCE

The treatment of chronic intractable pain raises three important questions: 1. How often and in what dosage may Demerol be administered without the danger of cumulation of toxic effects? 2. Will tolerance result from prolonged administration? 3. Will prolonged use of the drug result in addiction?

Moderately intense pain can be controlled with 50 to 100 mg. orally or parenterally every four hours. With severe pain as much as 150 to 200 mg. has been given every three hours without observed harmful effect. It is rarely necessary to exceed this dose to achieve satisfactory relief of pain. Furthermore, if this dose is unsatisfactory it is unlikely that greater relief will be obtained by the use of more Demerol or comparable doses of morphine.

Himmelsbach [27] and Andrews [28] reported that former addicts receiving 200 to 300 mg. every one and one-half to two hours may have severe muscular tremors and occasional epileptiform seizures. Severe reactions of this caliber have not been noted with the clinical use of the drug. Occasional "jumpy" feelings, muscular twitches or tremors of uncoordinated character occur in 0.4 per cent of hospitalized and 5 per cent of ambulatory patients.[6] Duguid and Heathcote,[29] Barlow [4] and Schaumann [2] have each reported the weak cerebral depressant action of Demerol in animals with amounts comparable to therapeutic doses but cerebral stimulation and convulsions with larger doses. With therapeutic doses Demerol does not result in progressive depression of the central nervous system such as may be seen with frequent and repeated doses of morphine in nontolerant patients. On the other hand, excessive doses may result in cerebral irritability.

Prolonged use of Demerol in animals and man has not resulted in alteration of the hemopoietic system or produced disturbances in liver or kidney function. Urinary retention is rare. To date no disease or other medication has been found incompatible with Demerol.

Demerol is rapidly destroyed by the liver.[4] The nature of the breakdown products is not clear, but it has been suggested that the first step is hydrolysis of the ester group. Pharmacologic studies on such a compound revealed no typical Demerol effects. The rapidity of destruction of the drug in vivo may account for the relatively short period of analgesia, the small amounts of the drug detectable in the urine [30] and the ability to administer the drug for prolonged periods at intervals of three to four hours without cumulation of toxicity.

Any discussion of tolerance must take into account the various effects that can be produced with Demerol. Repeated doses of opiates result in the development of tolerance to the depressant effects on the central nervous system, such as sedation, analgesia and respiratory depression. Evidence for the development of tolerance in former addicts to the pain threshold raising effect of opiates and Demerol has been furnished by Andrews.[31] In the case of Demerol, tolerance to the skin pain threshold raising effect is usually manifest within two weeks and reaches a maximum at the end of eight weeks. In a group of 115 hospitalized patients [32] receiving from 42 to 492 doses of Demerol within periods of from four to twenty-eight weeks no appreciable tolerance to its general clinical analgesic effect occurred. Clinical analgesia is probably the result of one or more of the following effects: (1) a central action on the midbrain or the thalamic area blocking or reducing the transmission of pain sensation from the periphery to the cerebral cortex, (2) an altered reactivity of the patient to the pain so that even if perceived the "fear reaction" is not evoked and (3) an increased threshold to painful stimuli at the periphery. The latter factor, although of immense help in evaluating relative potency of analgesics, appears to be of minor importance as far as general analgesia is concerned.

In addition to the peripheral pain threshold raising effect, tolerance develops rapidly to the somnifacient action and to many of the side actions.

ADDICTION

With any drug possessing morphine-like action on the central nervous system, serious consideration must be given to questions concerning the possibility of addiction. In the pain free, normal experimental subject, the effects of Demerol are described variously, depending perhaps on the underlying psychologic makeup of the individual. To some it is pleasant, "like a cocktail" or the development of a sense of well-being, while in others there is an ill defined, disagreeable sense of insecurity or the occurrence of unpleasant dreams. These sensations are neither consistent nor predictable. Some subjects like the effect and want to repeat it, while in others the converse attitude occurs. Since this may involve the "nitritoid" reaction, the position of the patient may influence the effect and subsequent use of the drug. The implications of the experience and the personality makeup of the individual are obvious.

Drug addiction is a condition in which a person has lost the power of self control with reference to a drug. When a regularly pleasant effect leads to a strong desire for its frequent repetition, psychic dependence or habituation is apt to result. An extension of such frequent and regular repetition of a drug as regards both dosage and interval of administration may lead to the development of physical dependence. Physical dependence, a serious consequence of opiate abuse, is perhaps related to overcompensation by the autonomic nervous system in order to maintain homeostasis of certain vital functions disturbed by the drug. On discontinuation of the drug an abstinence syndrome consisting of characteristic signs and symptoms occurs.[33] While physical

27. Himmelsbach, C. K.: Studies of the Addiction Liability of Demerol (D-140), J. Pharmacol. & Exper. Therap. **75:** 64 (May) 1942.

28. Andrews, H. L.: Cortical Effects of Demerol, J. Pharmacol. & Exper. Therap. **76:** 89 (Sept.) 1942.

29. Duguid, A. M. E., and Heathcote, R. St. A.: Pharmacological Action of Ethyl Methylphenyl Piperidine Carboxylate, Quart. J. Pharm. & Pharmacol. **13:** 318 (Oct.-Dec.) 1940. Schaumann.[2] Barlow.[4]

30. Lehman, R. A., and Aitken, Theis: The Determination of Demerol in Urine with Preliminary Observations on Its Excretion in Man, J. Lab. & Clin. Med. **28:** 787 (March) 1943. Oberst, F. W.: Personal communication to the authors.

31. Andrews, H. L.: The Effect of Morphine and Prostigmine Methylsulfate on Measurements of Pain Threshold, J. A. M. A. **120:** 524 (Oct. 17) 1942; The Development of Tolerance to Demerol, J. Pharmacol. & Exper. Therap. **75:** 338 (Sept.) 1942.

32. Batterman, R. C.: Unpublished data.

33. Kolb, Lawrence, and Himmelsbach, C. K.: Clinical Studies of Drug Addiction: III. A Critical Review of the Withdrawal Treatments with Method of Evaluating Abstinence Syndromes, Pub. Health Rep. supplement 128, 1938; Am. J. Psychiat. **94:** 759 (Jan.) 1938.

dependence on Demerol has not yet been encountered in "normal" persons, it has been produced in former addicts.[26] However, because of the brief duration of the physical dependence action of Demerol and its lesser potency than morphine in this regard, the experimental production of physical dependence on Demerol is not easy even for such patients. For example, habituation but no significant physical dependence resulted from the administration of 75 mg. of Demerol four times a day for a period of three months. Nor did clinically significant physical dependence develop when the drug was administered in amounts of 75 to 100 mg. eight times a day for four weeks to former addicts who had never before received Demerol. However, those who had had previous experience with Demerol developed definite physical dependence to the latter dosage after two weeks of readministration. On the other hand, when Demerol was clinically readministered to patients who were not former addicts, abstinence phenomena were not encountered on its subsequent discontinuation. While the implication of these results is not yet clear, they suggest that a somewhat different mechanism may be involved than that entailed in the development of physical dependence to morphine.

It would seem, therefore, that questions concerning the development of physical dependence on Demerol must be considered from the following points of view:

1. Can Demerol produce physical dependence? The answer to this is yes.

2. Is physical dependence likely to result from the bona fide use of Demerol in the practice of medicine? This has not been encountered nor do we feel that it is likely to be, if the therapeutic requirement is not exceeded. On the other hand, it is not uncommon to note the development of physical dependence on opiates by patients requiring their use for a chronic ailment. Such patients are not usually considered addicts in the sense that abuse of the drug is not an outstanding feature. Nevertheless it is often difficult to distinguish between the actual necessity for morphine to alleviate the condition or satisfy the physical dependence. This experience agrees with the theoretical relationship[34] to the development of physical dependence of the relative potencies and the durations of action of morphine and of Demerol, the latter being weaker and shorter in its physical dependence action.

3. Under what conditions may physical dependence to Demerol be expected: (*a*) In an unstable person who otherwise would abuse an opiate to the point of addiction but who had had no previous opiate experience? While this is a very important question it cannot be answered at the present time, since the drug has been available to this type of person for an insufficient period of time.

(*b*) In an unstable person suffering an illness requiring prolonged administration of a potent analgesic who will seek the drug subsequent to discharge, not for continued therapeutic effects, but because it satisfies his inebriate impulse? Again, we do not know, for the same reason.

(*c*) In an otherwise normal person suffering an illness requiring the prolonged administration of a potent analgesic? To date it has been possible to study this question by withholding the drug from 47 of 115 patients[32] who had received it for long periods of time. In none of these patients were signs or symptoms of abstinence encountered.

(*d*) In a former morphine addict? If Demerol is abused by such a person, physical dependence is apt to result. It is not yet known whether the therapeutic use of Demerol for the relief of chronic painful conditions in former addicts is liable to result in physical dependence. Results of its chronic administration in therapeutic doses to pain-free former addicts suggest that it may be safer than morphine in this regard.

The ability of Demerol to produce physical dependence among former morphine addicts raises the question of whether or not the drug is of any value in the treatment of the morphine abstinence syndrome. Although it is conceded that the best drug for this purpose is morphine itself, Demerol also definitely modifies the syndrome and can be used satisfactorily in place of morphine for this purpose.[35] Its ameliorative action is considerably briefer than that of morphine, and this must be taken into account in prescribing a rapid reduction treatment with the drug. Large frequent doses are required when patients are being treated who have shown a strong dependence on morphine. For such patients Demerol is not only less satisfactory than morphine but may result in undesirable side actions including toxic psychosis. With patients who have less intense physical dependence, Demerol is a satisfactory drug in the treatment of the morphine abstinence syndrome. It must be emphasized, however, that if Demerol is continued in the treatment of such patients, physical dependence may be shifted from morphine to this drug. Hence it is necessary to reduce the dose progressively. Furthermore, "breaking the habit" in an individual case while under observation does not constitute a "cure," since the psychiatric makeup of the patient remains unaltered and, unless corrected, drugs are resorted to again on discharge.

CONCLUSION

With the exception of the production of cough and diarrhea, Demerol has been found to be a satisfactory therapeutic substitute for morphine. It appears to possess the following clinical advantages over morphine:

1. Its spasmolytic action makes it ideal for the relief of conditions due to smooth muscle spasm, in which morphine is pharmacologically contraindicated.

2. Its rapid dissipation tends to offset undesirable cumulative effects such as respiratory depression and urinary retention.

3. Prolonged use of Demerol may lead to the development of habituation, but it appears to possess a lesser liability than morphine for the development of physical dependence.

In order to avoid the dangers of habituation, physical dependence and undue cerebral irritability, amounts greater than 150 mg. every three hours should not be given. We wish to reemphasize the point that, if this amount will not meet the clinical need, increasing the dose and shortening the interval not only may not have any additional therapeutic value but is apt to result in serious consequences.

477 First Avenue.

34. Himmelsbach, C. K.: Studies of Certain Addiction Characteristics of (*a*) Dihydromorphine ("Paramorphan"), (*b*) Dihydrodesoxymorphine-D ("Desomorphine"), (*c*) Dihydrodesoxycodeine-D ("Desocodeine") and (*d*) Methyldihydromorphinone ("Metapon"), J. Pharmacol. & Exper. Therap. **67**: 239 (Oct.) 1939.

35. Preston, W. A.; Weisel, C., and Pfeffer, A. Z.: Personal communication to the authors.

Clinical Notes, Suggestions and New Instruments

DEER FLY DESENSITIZATION

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Chrysops is a genus of Tabanid fly. The Florida species is the deer fly or Chrysops discalis, which may be one of the transmitters of tularemia. This fly is probably familiar to those especially who do any hunting or fishing, as in the spring of the year they certainly can bite.

REPORT OF CASE

In 1938 L. D., a white man aged 45, came into my office complaining that the deer fly bites he was receiving while working in his grove were getting to a point where they were disabling him. He had never been particularly bothered by them until that spring, although he had been in Florida in the grove business since 1926. However, now when he received a bite, which was mostly on his wrists, as he had begun to protect his face and neck with mosquito netting and his hands with gloves, his arm would swell and become painful. The flies, which in previous years had not bothered him, now seemed to be attracted to him and preferred him to any other person working in the grove. They had become so bothersome that it was hard to work in the grove on their account, even though he had protected himself with screening.

His physical examination was negative and he had no history of any allergy. I gave him some ephedrine sulfate and suggested that he use oil of citronella or some other insect repellent. A few days later he came back to the office and his right hand, forearm and arm were swollen to what seemed to me to be twice the normal size. The wrist had areas of erythema, and red streaks radiated upward on the forearm, which was very painful. This was about 11 a. m. and he gave a history of having been bitten by a deer fly the previous morning about 10 o'clock and his hand had begun to swell, continued to swell and became quite painful until the swelling had reached his shoulder by the following morning, when he became alarmed and came to the office. His physical examination again was negative, except for his right upper extremity. I prescribed a wet magnesium sulfate dressing, epinephrine hypodermically and continuation of the ephedrine sulfate, and I advised him to stay indoors. I also asked him to get me some deer flies to make an antigen. He brought me 35 deer flies the next day. His arm was somewhat better, but I told him to continue the wet dressings and to return the following day.

I had not had any previous experience in making insect antigens. I macerated 30 of the flies in 30 cc. of a buffered solution, making a strength of 1 deer fly to 1 cc. of the buffered solution, and put it through a Seitz filter. The solution was clear and colorless after filtering and was cultured on plain agar and Loeffler's medium and in bouillon for one week. No organisms were found, so 0.1 cc. of antigen was injected intracutaneously in my arm. There was no reaction, so in twenty-four hours 0.1 cc. was injected into the arm of my technician, with no reaction. In the meantime the patient's arm had become normal and he was given 0.1 cc. intracutaneously of the antigen. The injection caused a red wheal about 1 cm. in diameter, which had practically disappeared the next day. The second day he was given 0.2 cc. subcutaneously. There was no apparent reaction, so two days later he was given 0.5 cc. subcutaneously. The arm became red and painful at the site of injection but quieted down within thirty-six hours. Up to this time he had stayed out of the grove; now he went back into the grove but protected himself against the deer flies as before. One week after the 0.5 cc. dose I gave him 1 cc. and continued weekly injections of 1 cc. for ten weeks. By this time the deer fly season was past, but he had been bitten several times without any swelling.

The following spring, 1939, when the deer fly season came, he brought me 20 flies and I made another antigen of the same strength and gave him 0.1 cc. intracutaneously, two days later 0.2 cc. subcutaneously and two days later 0.5 cc. subcutaneously. There was very little reaction, so two days later he was given 1 cc. subcutaneously and 1 cc. for weekly intervals for three weeks; that is, four 1 cc. doses. None of these injections appeared to give him any reaction. All during this time he was working in the grove and was bitten a few times by the deer flies, but the reaction was never more than a slight transient wheal. The patient for four years now has worked in the grove during the deer fly season and has had no abnormal swellings from the bite of these flies.

COMMENT

As far as I can find, this is the only case on record in which the bite of the deer fly has caused enough swelling and pain to render a person incapable of work.

The patient became increasingly sensitive to the repeated bites and rapidly desensitized by the injection of the extract made from the whole fly.

After becoming desensitized the patient did not attract the deer flies any more than if as much as the other men working in the grove. Of course, this is his statement.

The desensitization has persisted now for four years.

Read before the Pinellas County Medical Society, St. Petersburg, Fla., Feb. 5, 1943.

HUMAN TRICHINOSIS FOLLOWING INGESTION OF BEAR MEAT

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It is generally considered that 90 per cent or more of human trichinosis occurs as a result of the ingestion of pork. However, according to reports from other areas "both bears kept in captivity and those in their native habitat show a definite heavy infection with trichinelliasis."[1] Between 1930 and 1935, 29 cases with three deaths were reported by Geiger and Hobmaier as due to the eating of bear meat in California and most of these infections occurred from the ingestion of "jerked meat." These authors mentioned also the possibility of the infection of rats, wild hogs, dogs, cats, foxes, coyotes, badgers and ferrets. As a consequence of their findings they suggested careful disposal of carcasses of any of these animals, especially in cities and zoological gardens.[1] Hall[2] reports 2 or 3 cases of trichinosis resulting from eating beef, several cases from bear meat and 1 from dog meat. It is interesting to note that trichinosis in swine is rare in Great Britain, but it is endemic in rats.[3] Other authors[4] present evidence showing that any game or fur bearing animal may be infected.

To my knowledge no case of human trichinosis has been previously reported following the ingestion of bear meat in New York State.

On Dec. 17, 1942 a report was received in the Albany District Office of the New York State Department of Health suggesting the possibility of a case of trichinosis in a neighboring community. R. D., a white man aged 38, stated that on December 5 he had a severe frontal headache which had persisted intermittently until the time of the investigation. There were no other symptoms until December 10, when the patient noted puffiness of the eyelids with some injection of the scleral blood vessels. He sought the advice of an ophthalmologist, who, suspecting trichinosis, referred him to an internist. The diagnosis was confirmed and the patient advised to remain in bed. He was not hospitalized. On December 14 fever was noted for the first time when it reached a peak of 102.6 F. and fluctuated between 99 and 101 F. for the next three days. At the time of the visit of the investigator at the home there was no fever present. Also on December 14 the patient began to complain of pain in the muscles of the neck and in the wrists, the latter being very transient in nature. Examination of the muscles of the neck revealed no tenderness to pressure.

1. Geiger, J. C., and Hobmaier, M.: California & West. Med. **51:** 249-250 (Oct.) 1939.
2. Hall, M. C.: Pub. Health Rep. **53:** 1472 (Aug. 19) 1938.
3. Beeson, P. B.: Proc. Roy. Soc. Med. **34:** 585-594 (July) 1941.
4. Committee appointed by Advisory Council on Livestock and Meat Research: Trichinosis and Nonclinical Infections with Trichinella Spiralis, J. A. M. A. **114:** 35 (Jan. 6) 1940. Wright, W. H.: Am. J. Pub. Health **29:** 119 (Feb.) 1939. Rubli, H.: Schweiz. Arch. Tierh. **78:** 420, 1936. Kerr, K. B.: South. M. J. **33:** 511-516 (May) 1940.

No swelling existed, but the patient thought there had been slight swelling over the right trapezius muscle. No gastrointestinal symptoms were noted until December 16, when slight nausea occurred. There was no vomiting or diarrhea, and the nausea lasted less than twenty-four hours. Differential blood count on December 12 revealed a 10 per cent eosinophilia.

The attempt to determine the source of Trichinella spiralis was productive of almost too many leads. On November 14 the patient ate bear meat at his own home. This was thought to be slightly rare. Bear meat was consumed on several occasions between that date and November 30, and during this period approximately 12 other persons had eaten of the same portions of the animal. On November 16 the patient had eaten rare roast pork at a dinner served to 22 persons. On November 19, on returning from a hunting trip in a neighboring county, he had stopped at a small tavern where he ate four small slices of smoked sausage along with a glass of beer. Two other men who were with him had eaten large quantities of the sausage, estimated to be about a half a pound per man. On November 30 the patient attended another supper at which meat loaf was served. He thought the loaf contained pork but had been well cooked. A total of 55 persons had eaten of the foods indicated but no one else had become ill.

Of these foods only the bear meat was available for analysis. It had been in cold storage at about 10 F. for forty-five days preceding laboratory examination on January 14. The bear had been shot in northern New York State at a location about 30 miles from the nearest village. Examination of a portion of the muscle from the shank revealed Trichinella spiralis.

217 Lark Street.

Special Article

HANDBOOK OF NUTRITION: XIII

FOODS OF ANIMAL ORIGIN

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These special articles on foods and nutrition have been prepared under the auspices of the Council on Foods and Nutrition. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the Council. These articles will be published later as a Handbook of Nutrition.—ED.

NATURAL AND ECONOMIC RELATIONSHIPS

Grouped according to natural relationships and then arranged in descending order of economic prominence, the chief types of food of animal origin are as follows:

1. Meats, including fish and poultry, which together command about one fourth[1] of the average American expenditure for food.
2. Milk in its various forms, including cheese, cream and ice cream, representing usually one tenth to one-eighth of the food budget.
3. Butter and other animal fats, about one tenth.
4. Eggs, about one twentieth.
5. Shellfish, which occupy but a small place in the nation's food budget but lend interest to variations in the dietary.

While this sketch will be systematized largely in terms of this fivefold grouping of its subject matter, it will also be possible to avoid repetition by arranging the discussion according to successive aspects of nutritive value.

Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of table 1. The complete article will appear in the Handbook of Nutrition.

1. Here and elsewhere such quantitative statements are to be somewhat flexibly construed, because in food statistics the fat meats are sometimes included under meats and sometimes under fats.

PHYSICAL STRUCTURE, PROXIMATE COMPOSITION, PROTEIN AND ENERGY VALUES IN NUTRITION

Meats, Poultry and Fish.—In recent years pork has somewhat outranked beef in the American food supply, with lamb and mutton occupying a place far below that of beef and veal. The slaughtering of the meat animals of these three species is a highly centralized industry in the sense that a large proportion of the animals raised for meat are slaughtered in large establishments.

In the case of swine the head is left on the dressed carcass, while with cattle, sheep and lambs the head is removed and the dressed carcass divided longitudinally by splitting the backbone. For this reason and also because of greater fatness the dressed weight of swine is about 80 per cent of the live weight; of beef it is about 60 per cent; of lamb and mutton, about 45 to 50 per cent. Of the butcher's meat about 97 to 98 per cent is muscle, with its accompanying adipose tissue and bone, and only about 2 to 3 per cent is liver. That there is no way of increasing the ratio of liver to muscle meat is of course an obvious fact yet one which often seems to be forgotten when liver is emphasized as a food. Liver can never take a large part in the general food supply; its importance in dietetics lies in getting it consumed by the patients who specifically need it rather than in teaching other people to want it.

The proximate composition and energy value for each sufficiently important food of animal origin is given in table 1, based on the recent government compilation of such data for these and other American food materials.[2]

Market classes and grades of beef and lamb relate to physical properties of the meat which, except as fat affects both, have little if any nutritional significance. Such conventional preferences should be rescrutinized from time to time in the light of newer knowledge: for example, the fashion has been to prefer that meat fat be firm and white, whereas we now know that a softer, yellower meat-fat is apt to be superior nutritionally.

The muscle tissue, considered separately from all deposited fat, i. e. "clear lean" meat, is of fairly constant composition: about 1 per cent of total mineral matter, 20 to 25 per cent of protein and the rest water. There is somewhat less protein and more water in the muscle tissue of fish than of land animals, and in young than in mature animals of a given species; but among the meats and fish ordinarily entering into the human dietary the latter differences are not of such degree as to have much effect on nutritive values.

The outstanding source of difference in the nutritional character of meats is the widely varying proportion of fat. The fatty layers, or masses or adipose tissues, of meat may be thought of as similar in composition to butter: 80 to 90 per cent of actual fat, with about 15 per cent of water, small amounts of protein and salts.

The approximate average percentages of protein and fat have been determined for many kinds and cuts of meat as illustrated in table 1.

This table also shows the proximate composition and energy values of the other chief foods of animal origin.

In composition and energy value there is no distinct gap between the fat meats and the commercial fats.

2. Chatfield, Charlotte, and Adams, Georgian: Proximate Composition of American Food Materials. Circular 549, U. S. Dept. Agriculture, June 1940.

Fat pork is, in fact, sometimes grouped with meats and sometimes with fats. If this is kept in mind it will clear up some apparent discrepancies in food statistics.

Eggs, like lean meats, are about three fourths water, with about 1 per cent of mineral matter; but the organic matter for the egg as a whole consists about equally

TABLE 2.—*Approximate Average Relationships of Mineral Elements to Protein in the Chief Types of Food of Animal Origin*

	Grams of the Mineral Element per Hundred Grams of Protein			
	Meats	Fish	Eggs	Milk
Calcium	0.058	0.109	0.453	3.372
Magnesium	0.118	0.133	0.101	0.343
Potassium	1.694	1.671	1.078	4.086
Sodium	0.421	0.373	1.094	1.457
Phosphorus	1.078	1.148	1.750	2.657
Chlorine	0.378	0.528	0.938	3.028
Sulfur	1.146	1.119	1.539	0.971
Iron	0.015	0.0055	0.024	0.0057

of protein and fat. Egg white is about seven eighths water and one eighth protein, while egg yolk is about one half water, one third fat and one sixth protein.

The actual averages of these constituents for all the foods here mentioned as well as other foods of animal origin, as officially published by the U. S. Department of Agriculture, are given in table 1.

Milk, Cream and Cheese.—While none of the staple meats contain any significant amount of carbohydrate, milk contains more of lactose than of either protein or fat. Milk is also much more watery than even the leanest meat, the latter having about one fourth solids while fresh whole milk has only about one eighth, and fat free milk (the analogue of clear lean meat) is more than nine tenths water and less than one tenth solids.

Cream differs from milk simply in containing more of the fat globules with a consequent (relatively small) diminution of the watery part (aqueous phase) of the milk in which its carbohydrate (lactose, milk sugar) is dissolved and in which its proteins and mineral matters are partly dissolved and partly held in aqueous dispersion. The fat globules constitute one part in 25 or 30 of average whole milk. Hence cream containing, say, five or six times as much fat as milk does, will still contain four fifths to five sixths as much as milk does of all the other milk constituents. Enrichment of the dietary in these milk constituents is often nutritionally desirable. It is therefore important to remember that, if milk itself is not relished, cream may be used instead.

Cheese is another form of milk which may be more interesting to the consumer than the milk itself. In general, an ounce of cheese is equivalent to a pint of milk, though of course most of the lactose, certain fractions of the protein, mineral and vitamin values have escaped in the whey. The cheese retains, however, nearly all of the fat and fat soluble vitamins of the milk and much the greater part of the protein, the calcium and the riboflavin. (All this, of course, refers to real cheese, not cottage cheese, which retains very much less of the mineral and vitamin values.)

Shellfish share with milk the property of containing a significant percentage of carbohydrate (in their case, glycogen); but otherwise their composition resembles that of meats, fish and poultry.

MINERAL ELEMENTS AND THEIR NUTRITIONAL AVAILABILITY

Statements regarding the nutritional characteristics and nutritive values of meats are complicated (and may become confused or misleading) by the wide differences in fatness and resulting chemical composition among meats. This is true not only as between different species used as human food but also as between different individuals of the same species (and even of the same sex and age) and often as between different cuts from the same carcass.

Considered aside from the glandular organs and from bone, meats may be regarded as essentially composed of muscle tissue and adipose tissue, but these in quite variable proportions (quantitative relations).

Relatively few samples of meat have been analyzed for individual mineral elements. These have been chiefly clear lean specimens because it has been considered and is doubtless true that the mineral elements, like the proteins, belong essentially to the protoplasmic part of the meat. From the same point of view it may be expected that, as far as the influence of the varying amounts of fat on the mineral values of the meat are concerned, the amounts of the mineral elements will run essentially parallel with the amounts of protein. Hence in calculating the nutritive values of dietaries or larger food supplies one may, after computing the total meat protein from such data as those in table 1, then estimate the mineral contents by relation to the protein, using conventional average figures such as those given for meats and fish separately in table 2. For comparison table 2[3] shows the amounts of the chief mineral elements for milk and for eggs as well as for meats and for fish, each per hundred grams of protein in the respective food.

TABLE 3.—*Composition of Meat Samples (Forbes and Swift)*

Sample No.	Kind of Meat	Iron, per Cent	Nitrogen, per Cent	Protein (N × 6.25), per Cent	Ether Extract, per Cent	Moisture, per Cent	Mg. Iron per 100 Gm. of Protein
105	Bacon, cured	0.0013	1.67	10.44	64.10	22.31	12.5
107	Ham, cured	0.0014	3.37	21.06	13.60	64.61	6.6
114	Pork shoulder	0.0015	2.93	18.31	14.41	67.14	8.2
108	Pork hind quarter	0.0015	3.14	19.63	10.54	69.07	7.6
112	Lamb shoulder	0.0016	3.01	18.81	6.94	72.95	8.5
113	Lamb hind quarter	0.0016	3.25	20.31	5.27	75.59	7.9
102	Beef rib	0.0024	3.24	20.25	6.05	72.70	11.9
100	Beef round	0.0025	3.55	22.19	3.48	74.65	11.3
101	Beef loin	0.0025	3.29	20.56	6.39	72.02	12.2
103	Beef chuck	0.0025	3.17	19.81	7.13	72.84	12.6
109	Veal fore quarter	0.0023	3.47	21.69	1.70	76.08	10.6
110	Veal hind quarter	0.0027	3.54	22.13	1.54	76.68	12.2
116	Veal kidney	0.0040	2.61	16.31	4.17	77.82	24.5
111	Beef heart	0.0044	2.59	16.19	4.94	78.91	27.2
117	Beef brain	0.0053	1.68	10.50	7.89	79.15	50.5
104	Beef liver	0.0082	3.30	20.63	4.66	68.33	39.7
115	Beef spleen	0.0138	3.03	18.94	1.90	77.50	72.9
106	Beef kidney	0.0188	2.58	16.13	1.85	78.67	116.6
118	Beef blood	0.0444	2.87	17.94	....	80.99	247.5

Especially in the case of the iron contents of meats it was never intended to imply that the approximate average relationship indicated in table 2 should hold good for each different organ and tissue. Forbes and Swift[4] have published the results of their determina-

3. By permission of the Macmillan Company, publishers, the data here given are in part taken from pages 563 and 564 of Sherman's Chemistry of Food and Nutrition, ed. 6, May 1941, and in part adapted from the extensive table of which those pages are a part.

4. Forbes, E. B., and Swift, R. W.: Iron Content of Meats, J. Biol. Chem. **67**:517 (Feb.) 1926.

tions of iron in 18 individual samples of meat (and a sample of blood). These results are here reprinted, by permission, as table 3.

When account is taken of the relative quantities in which the different kinds of meat enter into the American food supply, the data for iron in tables 2 and 3 are seen to be quite consistent.

Less consistent are the published findings as to the nutritional availability of the iron of meats. Even the papers of such eminent investigators as Whipple and Elvehjem give such divergent impressions that it seems still an open question whether the different methods commonly accepted as indicative of the relative quantitative utilization of food iron in nutrition should be considered as measuring availability in the same (or in any closely comparable) sense. Numerical expressions of availability or utilization of meat iron in nutrition are therefore omitted here lest they should confuse instead of clarifying the subject.

TABLE 4.—*Approximate Average Vitamin Values of Some Typical Foods of Animal Origin*

	Data to May 1942		
Food	Vitamin A Value, International Units per 100 Gm.	Thiamine, Micrograms per 100 Gm.	Riboflavin, Micrograms per 100 Gm.
Pork, lean	Negligible	900	240
Bacon, medium fat, raw	Negligible	100	100
Beef, clear lean, raw	Negligible	160	230
Lamb, lean, raw	Negligible	200	235
Chicken, dark meat	Negligible	200 ?	260
Chicken, light meat	Negligible	200 ?	60
Eggs	1,500	150	350
Egg white	Traces	Traces	250
Egg yolk	4,000	400	550
Milk	195	50	205
Cream (24% fat)	1,500	40	160
Ice cream (13% fat)	800	50	200
Cheese (32% fat)	2,200	40	500
Butter	4,500	Negligible	Negligible
Oysters	200	250	Undetermined
Milk, dried, skim	Undetermined	500	2,000

We know of no reason for doubting the nutritional availability of the other mineral elements of meats and of all the mineral elements of milk and eggs.

VITAMIN VALUES

The vitamin A value of a dietary, and of most of the individual foods of animal origin, is due (1) to vitamin A itself and (2) to its precursors, which are formed in plants and to some extent are stored in the animal body, where, however, the greater part is changed into vitamin A. Corresponding with the nutritional importance of vitamin A we find that evolution has accentuated the property of transfer of this vitamin from one generation to the next through milk and eggs. Most of the vitamin A which the body itself retains is held in the liver, whose content of this and other vitamins thus varies so greatly with the individual nutritional background as to make it seem nearly meaningless and perhaps misleading to attempt numerical averages in table 4. Taking account of available quantities, milk (including cheese, cream and ice cream), butter, margarines enriched with vitamin A from fish liver oils, the fish oils themselves and eggs are the chief sources of animal origin.

Of the B vitamin group our knowledge is as yet very uneven. Approximate average thiamine and riboflavin contents of typical foods of animal origin, based on a study of all the data available to June 1942 (including unpublished findings consulted through the courtesy of Dr. C. N. Frey, Dr. R. R. Williams and Dr. V. H. Cheldelin, as well as my co-workers at Columbia) are given in table 4. Lean meats, eggs, milk, cheese, cream and ice cream are all noteworthy sources of riboflavin when taken in the quantities which are normal to typical American dietaries. In such dietaries, milk and its products will furnish something like one half of the total riboflavin, and meat and eggs the greater part of the remainder. Of thiamine the foods of animal origin are not such prominent contributors, a relatively larger share of the responsibility for the thiamine intake resting on enriched and whole grain breadstuffs and cereals. Lean pork is richer in thiamine than other common meats.

Niacin (nicotinic acid) is qualitatively well established as an antipellagric factor; but the estimates of quantities of niacin contained in foods or concerned in nutrition are as yet very tentative and uncertain, and it is a mistake (though doubtless one for which we scientists are ourselves responsible) to suppose that niacin bears any such clearcut relation to pellagra as, e. g., ascorbic acid bears to scurvy. On paper, pellagra may have been redefined as nicotinic acid deficiency, but the typical pellagrin actually needs so much more than this one factor that his case is probably not so parallel with that of the blacktongue dog as has often been assumed; and for the same reasons as well as because of the uncertainties of present analytic methods, figures comparing the estimated nicotinic acid contents of foods are apt to give very misleading impressions. Therefore I do not attempt to include them in table 4, or the other B vitamins now recognized but of which our knowledge is as yet little more than qualitative.

From a combined study of the earlier work of Osborne and Mendel and the recent work of Elvehjem and his co-workers at Wisconsin, it appears probable that both milk and meat contain all the B vitamins concerned in mammalian nutrition.

Ascorbic acid has been shown by Bessey and King[5] to occur normally in amounts demonstrable by modern methods in animal tissues generally, especially the glandular organs. Muscle, however, contains very little, and this is further reduced by the time the meat is served at table. For the purposes of practical dietetics, therefore, the vitamin C value of meats is considered negligible; also that of eggs. Fresh milk and oysters furnish about 2 to 3 mg. of this vitamin per hundred grams. The extent of the loss in present day pasteurization of milk has been repeatedly found to be about one fifth. In practice we look to fruits and vegetables rather than to the foods of animal origin for our dietary vitamin C.

Vitamin D is present in only negligible amounts in meats generally; slightly more in liver, milk and butter; distinctly more in eggs. The amounts contained in these foods have, however, been but little studied, since it has been shown that the fish liver oils contain very much greater concentrations and also that milk can readily be fortified to make the now familiar "vitamin D milk" of commerce.

5. Bessey, O. A., and King, C. G.: The Distribution of Vitamin C in Plant and Animal Tissues and Its Determination, J. Biol. Chem. **103**: 687-698 (Dec.) 1933.

For the reasons just given, the data on vitamins C and D naturally present in foods of animal origin are omitted from table 4.

Losses of Vitamins in Cooking.—Losses in cooking are usually larger for vitamin C than for any of the other vitamins. Several independent investigations have consistently shown the diminution of 18 to 20 per cent in the vitamin C value of milk in modern pasteurization, and there is no reason to suppose that the loss would be very different in ordinary cooking operations. There has been no occasion for the comparison of different foods of animal origin in this respect, as so few of them have measurable vitamin C value. Cooking losses of thiamine and riboflavin seem to be higher for meat than for milk, with eggs probably occupying an intermediate position but yielding extremely variable results according to the mode and conditions of cooking. The cooking losses of thiamine and riboflavin in meats have also seemed to vary greatly in the investigations thus far reported, and much additional experimental work in this field is now proposed and in some cases in progress. Hence it seems better not to record in numerical form any findings which could now be given, since we may hope that more conclusive data will be available soon.

OTHER DIETARY CONSIDERATIONS

There is experimental evidence, the fuller explanation of which is still under active research, that some fats of animal origin have special values in nutrition beyond those due to the hitherto well established factors. To Dr. Burr in Minnesota and to Dr. Hart in Wisconsin, who with their respective co-workers are outstandingly engaged in two such lines of research, I am indebted for personal communications bringing their findings up to May 1942 as follows: Dr. Burr holds that, while the explanation is still a research problem, a few fats including lard are superior to many other food fats as shown by growth experiments with young rats; and Dr. Hart writes "Our work with the 21 day old rat supports the conclusion that there are in butter fat saturated fatty acids of high molecular weight which accelerate the rate of growth as compared with such vegetable oils as corn oil, cottonseed oil, soybean oil, coconut oil and olive oil."

While meat, eggs and milk are much alike in the nutritional efficiency of their proteins, yet these are accompanied by other nutrients which in some respects are quite different either in kind or relative amount, with the result that meat and eggs do not assist the body, as does milk, in the maintenance of its alkali reserve and of a favorable intestinal flora, and hygiene of the alimentary tract. Also the larger the proportion in which milk is used as source of animal protein, the better insured is the liberality of calcium intake, which is now known to be more important at all ages than hitherto understood.

Limitation of space forbids discussion here of the relative economy of the different foods of animal origin from the point of view of the percentage of the food-money which is spent for each and its percentage contribution to each of the nutrient factors of the dietary; but this is something which physicians in the future may well carry in mind, now that we know how greatly health depends on the wise investment of the money available for food.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

PROCAINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1942, p. 56).

The following dosage forms have been accepted:

ENDO PRODUCTS, INC., RICHMOND HILL, N. Y.

Ampuls Solution Procaine Hydrochloride 2% W/V: 2 cc. Each cubic centimeter contains 0.02 Gm. of procaine hydrochloride, 0.005 Gm. of chlorobutanol and 0.001 Gm. of sodium bisulfite in distilled water.

Ampuls Solution Procaine Hydrochloride 2% with Epinephrine 1: 20,000: 3 cc. Each cubic centimeter contains 0.02 Gm. of procaine hydrochloride, 0.05 of epinephrine, 0.005 Gm. of chlorobutanol and 0.001 Gm. of sodium bisulfite in distilled water.

Solution Procaine Hydrochloride 2% W/V: 30 cc. and 100 cc. vials. Each cubic centimeter contains 0.02 Gm. procaine hydrochloride, 0.005 Gm. of chlorobutanol and 0.001 Gm. of sodium bisulfite in distilled water.

Solution Procaine Hydrochloride 2% with Epinephrine 1: 25,000: 30 cc. and 100 cc. vials. Each cubic centimeter contains 0.02 Gm. of procaine hydrochloride, 0.04 mg. of epinephrine, 0.005 Gm. of chlorobutanol and 0.001 Gm. of sodium bisulfite in distilled water.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1942, p. 555).

The following dosage forms have been accepted:

DRUG PRODUCTS CO., INC., LONG ISLAND CITY, N. Y.

Hyposols Solution of Thiamine Hydrochloride Crystals, 100 mg. per cc.: 10 cc. and 30 cc. vials. Preserved with 0.5 per cent of chlorobutanol.

ENDO PRODUCTS, INC., RICHMOND HILL, N. Y.

Solution Thiamine Hydrochloride, 100 mg. per cc.: 5 cc., 10 cc. and 25 cc. vials. Preserved with 1 per cent benzyl alcohol.

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Solution Thiamine Hydrochloride, 100 mg. per cc.: 10 cc. vials. Preserved with 0.5 per cent chlorobutanol.

JOHN WYETH & BROTHER, INC., PHILADELPHIA

Ampoule Solution Thiamine Hydrochloride, 100 mg. per cc.: 10 cc. Preserved with 0.5 per cent chlorobutanol.

DIODRAST (See New and Nonofficial Remedies, 1942, p. 309).

The following dosage form has been accepted:

WINTHROP CHEMICAL CO., INC., NEW YORK

Ampules Diodrast Sterile Solution (35 Per Cent, Weight/Volume: 30 cc.

MENADIONE (See New and Nonofficial Remedies, 1942, p. 584).

The following dosage form has been accepted:

E. R. SQUIBB & SONS, NEW YORK

Solution Thyloquinone (in Corn Oil) (Oral), 1 mg. per cc.: 5 cc., 10 cc. and 50 cc. vials. Each cubic centimeter contains 1 mg. of thyloquinone.

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED) (See New and Nonofficial Remedies, 1942, p. 513).

The following dosage form has been accepted:

PITMAN-MOORE COMPANY, INDIANAPOLIS

Diphtheria Toxoid (Alum Precipitated, Refined): Two 1 cc. vials (2 doses), 5 cc. vials (5 doses), and 10 cc. vials (10 doses). Preserved with 1: 10,000 merthiolate.

RABIES VACCINE (SEMPLE) (See New and Nonofficial Remedies, 1942, p. 506).

The following dosage form has been accepted:

PITMAN-MOORE COMPANY, INDIANAPOLIS

Rabies Vaccine (Killed Virus) Semple Method: 1 cc. vials packaged in units of seven vials. Preserved with 1 per cent of phenol.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 22, 1943

INDUSTRIAL SOLVENTS

Most important in the field of industrial toxicology is the rapid development of new solvents for use in a variety of manufacturing processes. Many of these solvents were chemical curiosities a few years ago; now they are sold in carboy or even tank car lots. Inevitably the medical profession is consulted as to the possible harmful effects of using solvents and especially from breathing them.

Possible dangers from the use of these new chemicals are appreciated by the chemical industry. Manufacturers often establish research fellowships or special contractual arrangements with universities such as Pennsylvania, Harvard and Cincinnati, with specially qualified institutions such as the Saranac Laboratories and the Industrial Hygiene Foundation and with private consultants. Some manufacturers have well equipped laboratories of their own and staffs of specialists whose sole work concerns the industrial toxicology of their own products. The industrial hygiene laboratories of the Public Health Services at Bethesda, Md., are publishing an ever increasing volume of fundamental researches on industrial toxicology which are of the utmost importance to industry.

With this new information it is surprising that there has not been more interest in one of the fundamental problems of industrial toxicology—how much of some particular solvent is absorbed by a man exposed under definite conditions and how rapidly he excretes it when exposure ceases. In a series of papers which have proved of great practical value in anesthesia, Haggard of Yale showed by animal experimentation how two types of solvents, ethyl alcohol and common ether, are absorbed, metabolized and excreted. Of special significance was his proof of the fundamental physicochemical nature of the general processes involved. Necessarily he used doses measured in percentage or parts per hundred. He showed that ether was absorbed and excreted almost wholly by way of the lungs, while alcohol, which is highly soluble in body fluids, is excreted both in urine and in exhaled air and also is metabolized.

In the paper by McKee and others,[1] analogous studies with carbon disulfide are described. The important difference between McKee's and Haggard's work lies in the difference in the compounds studied, but more particularly on the concentration levels or doses used. McKee could use small amounts (parts per million) and thus approximate industrial conditions. Carbon disulfide happens to be determinable chemically in minute quantities, a fact which made the work possible.

Carbon disulfide is absorbed largely by inhalation; the time required to produce saturation of the blood depends entirely on the concentration in the air breathed and is proportionally longer for higher air concentrations. The major part of the absorption of carbon disulfide at the low concentrations such as one encounters in industry takes place in the first thirty minutes, although complete saturation of all body tissues probably takes somewhat longer. Elimination by exhalation follows the same principles, but a considerable portion of the vapor is metabolized, which probably accounts for its recognized toxicity. The amount of muscular effort being expended by the workman exposed, the temperature of the air breathed and the relative humidity have no really significant effect on the amounts absorbed—their effect is wholly physicochemical.

Whether a new solvent is largely metabolized like alcohol or is excreted by breath like ethyl ether (carbon disulfide falls somewhere between the two) should be determined and the rate of absorption and excretion defined. Such figures enable industry to set safe concentration limits in the air of workrooms, a point of the greatest importance in industrial medicine.

GROWTH ACCELERATING PROTEIN

Isolation of a pancreatic protein that has remarkable growth promoting properties has been reported recently by White and Sayers [1] of Yale University. The protein was originally obtained by Kazel [2] as an insoluble residue after acid-alcohol extraction of the finely minced frozen beef pancreas. It was rendered lipid free by subsequent continuous extraction with acetone. Partial analysis of the oven dried (105 C.) end product showed that it contained an average of 16.2 per cent of nitrogen, 1.56 per cent of phosphorus, 1.56 per cent of tryptophan and 3.85 per cent of tyrosine, with an atomic purine nitrogen : phosphorus ratio similar to that calculated from Loring's data [3] for certain nucleic acids. Purine determinations suggested a nucleic acid content of 10 to 14 per cent.

1. McKee, R. W.; Kiper, Cemal; Fountain, J. H.; Riskin, A. M., and Drinker, Philip: A Solvent Vapor, Carbon Disulfide: Absorption, Elimination, Metabolism and Mode of Action, this issue, p. 217.

1. White, Abraham, and Sayers, M. A.: Proc. Soc. Exper. Biol. & Med. **51**: 270 (Nov.) 1942.

2. Kazel, L. A.; Westfall, R. J.; Ciceresko, L. S.; Risley, E. A., and Arnow, L. E.: Proc. Soc. Exper. Biol. & Med. **51**: 268 (Nov.) 1942.

3. Loring, H. S.: J. Biol. Chem. **130**: 251 (Sept.) 1939.

Recently weaned male white rats were placed on a basal diet containing 22 per cent of this protein or the nitrogenous equivalents of other proteins. The control proteins included commercial casein, dried whole beef serum, heat coagulated beef serum protein, pumpkin seed globulin and soy bean protein. Each diet contained 25 per cent of crisco, 35 per cent of starch and 4 per cent of Osborne-Mendel salt mixture with a daily supplement of 400 mg. of dried yeast and 200 mg. of cod liver oil.

An extraordinary difference was observed in the average daily consumption of these diets, the lowest ad libitum consumption (4.7 Gm.) being with the diet containing 25 per cent of heat coagulated beef serum protein. The daily consumption of the diet containing 22 per cent of pancreas was more than twice that amount (10.8 Gm.), other diets occupying intermediary positions. The Yale physiologists offer no reason to account for this remarkable difference in daily food intake.

Even greater differences were noted in the nutritional value of the different diets. Here the slowest growth rate was recorded with animals fed 21 per cent of soy bean protein, each daily ingested gram of this diet leading to a daily increase of only 0.19 Gm. in body weight. The diet containing 22 per cent of pancreatic protein was three times more effective, giving a 0.55 Gm. daily increase in body weight per gram of food intake. With the exception of casein, other proteins occupied intermediary positions. Commercial casein also gave a daily increase in body weight of 0.55 Gm. per gram of ingested basal diet. Here also no theory was suggested to account for the remarkable nutritional differences.

As a result of the increased daily consumption of the diet containing pancreatic protein and its exceptionally high nutritional value, an extremely accelerated growth rate was recorded for the pancreas fed rats. During the first twenty-eight days the control soy bean diet led to only a 28 Gm. increase in body weight. The pancreatic protein gave a twenty-eight day weight increase six times as great, i. e. 166 Gm. The second best protein (casein) led to a weight increase of 133 Gm. during the same length of time, other control proteins occupying intermediary positions. Comparison between the two superior proteins (pancreatic residue and casein) was continued for a hundred and forty-five days, at the end of which time one of the rats that had been fed on pancreas had reached a body weight of 640 Gm., while its casein control litter mate weighed only 490 Gm.

The physiologists emphasize the fact that the ratio of body length to body weight remained constant throughout all their experiments.

With the present overemphasis on the health producing and growth promoting properties of vitamins, proof of equally definite acceleration of growth by the use of certain selected proteins is of basic clinical interest. The nutritional inferiority of soy bean protein is particularly suggestive, even though "soy bean dwarfism" has thus far been demonstrated only with white rats.

RESULTS OF HOSPITAL TREATMENT OF NARCOTIC DRUG ADDICTS

A thorough, well organized follow-up study[1] has been made of 4,766 male patients discharged from the United States Public Health Service Hospital at Lexington, Ky., during the period from Jan. 1, 1936 to Dec. 31, 1940. All these patients had received treatment in the hospital for addiction to narcotic drugs. The only narcotics mentioned in the report are opium and its derivatives. The follow-up was carried out between July 1 and Dec. 31, 1941: in other words, at least six months after the discharge of the last patient in 1940.

The results of the follow-up are presented in detailed tabulations, which are analyzed and discussed from various points of view. The patients fall into four general classes: voluntary, probationer patients, paroled prisoners and prisoner patients. A probationer patient is a narcotic drug addict who, for violation of a federal law, has been given a probationary sentence on the condition that "he goes to one of the United States Public Health Service hospitals either at Lexington or Fort Worth for treatment and remains until pronounced cured by the medical staff."

The state as to addiction of 39.6 per cent of the 4,766 discharged patients could not be determined, 7 per cent had died after leaving the hospital, 39.9 per cent had relapsed to the use of drugs and 13.5 per cent were still abstinent. Excluding the dead and the unknown, 74.7 per cent had relapsed and 25.3 per cent had remained abstinent.

The analysis of the facts about the different classes of patients led to the important conclusion that the most successful program of treatment for narcotic drug addicts includes a comparatively short period of hospitalization, not less than two months but not more than five, with acceptable employment as a prerequisite for release, and then adequate extramural supervision for three years with periodic check-up examinations. This means that for patients placed on probation for three to five years the one innovation necessary to carry this program into effect would be compulsory employment. Periodic check-up services have been initiated at the Lexington hospital. The general belief that a drug addict can never be cured is not supported by this follow-up study.

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1. Prescur, Michael J.: Follow-Up Study of Treated Narcotic Drug Addicts, supplement 170 to Public Health Reports, 1943.

Current Comment

EPIDEMIOLOGY OF RHEUMATIC FEVER

During the past ten years great activity has taken place in research on rheumatic fever. As pointed out by Paul,[1] appreciable strides have been made in understanding the epidemiology of rheumatic fever, owing in large part to the notable contributions of Hedley on rheumatic heart disease in Philadelphia hospitals. The appreciation of the pathogenesis of this disease has taken a new turn with the recognition of its close relationship to hemolytic streptococcus infections—a development based largely on the work of Coburn. Observations along these lines have wrought a profound change in present conceptions regarding the nature of rheumatic fever. The recent publication of a new edition of a book on the epidemiology of rheumatic fever, the first edition of which was published in 1931, constitutes a welcome summary at this time. It reviews the present status of the associations between rheumatic fever and acute hemolytic streptococcus infections, the geographic prevalence and climatic influences on the disease, the age, sex and racial prevalence, living conditions, the rheumatic family and like items of epidemiologic significance. There are four appendixes. The professional work of the author, Dr. Paul, and of the other members of the committee of the American Heart Association interested in the publication of this book assure its authoritative nature.

CITRATE SOLUTION FOR DISSOLVING PHOSPHATIC URINARY CALCULI

The desirability of a method for dissolving urinary calculi in situ by retrograde introduction of a suitably nonirritating solution has long been recognized. Suby and Albright,[1] who have studied this problem for several years, now report their results in 6 selected cases in which phosphatic urinary calculi were treated by the retrograde introduction of a citrate solution rendered less irritable than previously tried solutions by the addition of magnesium. The main object of the treatment was to keep the solution in contact with the stone as much as possible. The actual apparatus employed in each case depended on whether a simple nephrostomy tube, a two way nephrostomy tube, two nephrostomy tubes, a ureteral catheter and a nephrostomy tube, or one or more ureteral catheters were used. Technical aspects also varied, depending on the degree of patency of the ureter and on the amount of irritability of the bladder and urethra. In 2 cases the solution was introduced through ureteral catheters and in the remaining 4 through nephrostomy tubes. In these 6 cases the solution was used successfully for the partial or complete dissolution of stones. One case is also reported in which the attempted dissolution of a large stone was without success because the solution was prevented from coming in contact with the stone by a thin coating of an unidentified material, possibly an old blood clot. Suby and Albright emphasize that it is necessary to know before attempting to dissolve a stone with this solution, which they call solution G, that one is dealing with a phosphatic stone. Such a stone is composed of calcium phosphate with or without calcium carbonate or magnesium ammonium phosphate or both. Given the necessary indications, this solution appears to provide a practical method for dissolving certain types of urinary calculi.

1. Paul, John R.: The Epidemiology of Rheumatic Fever and Some of Its Public Health Aspects, distributed by the American Heart Association, 50 West Fiftieth Street, New York.

1. Suby, H. I., and Albright, Fuller: Dissolution of Phosphatic Urinary Calculi by the Retrograde Introduction of a Citrate Solution Containing Magnesium, New England J. Med. **228**: 81 (Jan. 21) 1943.

HEALTH LEAGUE OF CANADA

A report just issued by the Health League of Canada[1] summarizes the work of the league and its several branches. The Health League of Canada has some of the aspects of the American Public Health Association, which, as the professional organization of public health workers, includes Canadian and other North American representatives. The Health League of Canada also has some of the characteristics of the several voluntary health associations in the United States which specialize in the fields of tuberculosis, eyesight conservation, mental hygiene and similar specialties. In its membership the Health League of Canada includes both professional and lay members. There are branches of the league in Quebec Province and Quebec City, Vancouver, Ottawa, Toronto, London and Niagara Falls. It has standing committees of the usual organizational type plus committees on milk, social hygiene, nutrition, industrial problems, diphtheria and publicity. Through this comprehensive official and citizens group the league conducts general educational activities in the health field through the press, the radio and a magazine entitled *Health*. It gives attention to venereal disease control and diphtheria prevention. It advocates universal pasteurization of milk. It has prepared literature and other educational activities in the field of nutrition and industrial health. Public health meetings are organized. The league is financed by endowment, popular grants and donations, tag days and subscription and advertising revenue from its magazine. Its total revenue for twelve months ended April 30, 1942 was approximately $100,000. The Health League of Canada does through one comprehensive organization approximately the same type of health promotion work for the Dominion as is carried out in the United States by numerous health organizations of mixed professional and lay composition operating in much the same manner. Whereas in Canada coordination is attained through one organization, in the United States it has been attempted through the National Health Council and more recently through the National Conference for Cooperation in Health Education, in which more than forty health agencies are now participating experimentally to determine how efficient cooperation and coordination can be achieved.

1. Report of Twenty-Third Annual Meeting Health League of Canada, 111 Avenue Road, Toronto, Ont., 1942.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

PENICILLIN

Statement Released by the Committee on Medical Research

A. N. RICHARDS, Chairman

This statement is designed to acquaint the medical profession with the progress of efforts which are being made by the Committee on Medical Research of the Office of Scientific Research and Development, by the Division of Medical Sciences of the National Research Council and by certain commercial companies to promote investigation of the therapeutic usefulness of penicillin and to increase the available supply of this remarkable substance. They were initiated and are continuing as a phase of the war effort, directed primarily toward the benefit of our armed forces.

Penicillin was discovered by Fleming in London in 1929. The first information concerning its unique therapeutic possibilities was revealed in the publications in the *Lancet* (1940 and 1941) of experimental and clinical studies by Florey, Chain and their collaborators of Oxford. The intense interest in it now manifest in this country was initiated not only by those papers but by personal communications with Professor Florey during his visit to this country in the summer of 1941.

Florey's visit was arranged by the Rockefeller Foundation. After conferences with interested members of the National Research Council and the U. S. Department of Agriculture, Florey and his colleague Heatley proceeded to the Northern Regional Laboratory of the Department of Agriculture at Peoria, Ill. where studies were at once initiated by Dr. R. D. Coghill and Dr. A. J. Moyer on cultural characteristics of Penicillium notatum, the organism which makes penicillin, and on methods of purification of that substance. These studies are still continuing and have been of great value to those who are undertaking the production of penicillin.

Returning from Peoria, Florey consulted with several commercial companies in the hope that they might undertake production developments. His efforts in this direction were supported by encouragement from the Committee on Medical Research and the National Research Council, and in the early autumn of 1941 research looking toward production was begun in the laboratories of Merck and Company, E. R. Squibb and Sons, Charles A. Pfizer and Company, the Lederle Company, and perhaps others of which we were not aware. That research has continued; the interest of other companies has been aroused until today some sixteen companies are engaged in or intend to become engaged in the production of penicillin. In no instance has production advanced beyond the pilot plant stage; in the majority it is still in the laboratory stage.

The difficulties which confront large scale production are very great. They arise chiefly from the fact that in the metabolism of the mold only very minute amounts of penicillin are formed and those only after days of growth. A yield of as much as 1 gram of the purified product from 20 liters of culture fluid would be regarded as exceptionally high. In impure solutions penicillin is unstable; it is destroyed by bacterial or other contaminations to which the culture fluids are highly susceptible. Difficulties have been encountered in choosing the most productive strains of the mold and the most suitable culture mediums, in the development of methods for extraction and purification and in stabilization of the purified product.

The first clinical tests of penicillin in this country were reported by Dawson of Columbia in 1941. Other supplies became available in 1942, and in June of that year the Committee on Chemotherapeutic and Other Agents of the National Research Council, under the chairmanship of Dr. Chester S. Keefer, was invited to organize and supervise clinical investigations in selected hospitals, the records to be coordinated by Dr. Keefer and his committee. The costs of these studies, now proceeding in some twenty civilian institutions, are provided by contract with the Office of Scientific Research and Development, recommended by the Committee of Medical Research. The results will be published in due course.

Six weeks ago arrangements were made by the Surgeon General of the Army for clinical tests at the Bushnell General Hospital, Brigham City, Utah. There were to be found among soldiers returned from the Pacific area many cases of unhealed compound fractures, osteomyelitis and wounds with long established infections. The results have been so encouraging that plans are now in process for undertaking similar wound studies in ten general army hospitals and venereal disease studies in six. A similar though less extensive plan will be pursued by the Navy.

The results of these investigations thus far have completely upheld the early promise contained in the reports of Florey, Chain and their collaborators. More than 300 patients have been or are being treated with penicillin. There is good reason for the belief that it is far superior to any of the sulfonamides in the treatment of Staphylococcus aureus infections with and without bacteremia, including acute and chronic osteomyelitis, cellulitis, carbuncles of the lip and face, pneumonia and empyema, infected wounds and burns. It is also extremely effective in the treatment of hemolytic streptococcus, pneumococcus and gonococcus infections which are resistant to sulfonamides. It has not been found effective in the treatment of subacute bacterial endocarditis. Studies of the results of its local application are still inadequate.

Properly made preparations have given no toxic reactions, even from the largest dosage. Its rapid excretion in the urine necessitates frequent administration when given intravenously or intramuscularly.

The work of the coming three months can be expected to result in clearer definition of the conditions in military medicine in which penicillin will be most useful, of its limitations and of the most advantageous as well as the most economical methods of its administration. At the same time intense efforts are being made by manufacturers to expand production to a point at which it may be made available in significant quantities not only for casualties returned to this country but also for our forces overseas.

Unless an expansion of production takes place at a greater rate than can now be foreseen, the supply for civilian medical needs in the near future will be exceedingly limited.

ARMY

AMERICAN SOLDIERS ESCAPE TYPHUS

Although more than 100,000 cases of typhus fever occurred in North Africa in 1942, American military forces in that region have come through almost untouched by this disease, according to statisticians of the Metropolitan Life Insurance Company. In Tunisia in 1942 there were more than 16,000 cases, in Algiers more than 35,000 cases, in French Morocco 26,000 cases and in Egypt about 23,000 cases. It is likely that the favorable situation will continue with regard to our military forces in that region, because our military physicians are alert to the dangers from this disease, which is still a menace to the health of the civilian population.

A potentially dangerous situation exists in the battle areas and occupied regions of eastern Europe, but the facts are carefully concealed by German censorship. Even in Germany itself, which for generations has been free from typhus, numerous cases have been reported, the first seven weeks of 1943 showing 800, or nearly twice the number of cases, for the first quarter of 1942. There were more cases in Rumania in 1942 than at any time since 1936; for February 1943 the cases were said to have been 40 per cent greater than in the preceding February. Typhus is more prevalent in Bulgaria and in Hungary this spring than in 1942; some outbreaks have occurred even in France. The starved and ragged populations of eastern Europe are fertile soil for the spread of typhus. Until the axis armies are cleaned out of these countries and order and public health administration restored and the people get enough food and clothing, typhus will not be brought under control as it is among our own troops.

ANTITYPHUS DUSTING POWDER

Millions of 2 ounce cans of body dusting powder for the U. S. Army, already in the packs of North African troops, will protect overseas personnel against typhus-carrying pests, it has been announced by the Grasselli Chemicals Department of the du Pont Company. Though the powder contains some pyrethrum, an increasingly scarce standard ingredient of insecticides, according to a company official, substantial quantities are being saved by use of a du Pont developed synthetic. Laboratory tests have shown that the replacement compound, called IN-930, increases the efficiency of the pyrethrum in the powder.

FIRST WOMAN PHYSICIAN COMMISSIONED UNDER NEW LAW

Major Margaret D. Craighill, former dean of the Woman's Medical College in Philadelphia, who is the first woman physician to be commissioned directly in the Army under recently enacted legislation (THE JOURNAL, May 8, p. 123), will soon report for duty in the preventive medicine section of the Surgeon General's Office, Washington, D. C. According to the New York *Times*, Dr. Craighill's father and grandfather, Col. William E. Craighill and Gen. William P. Craighill respectively, were West Point graduates. Dr. Craighill was born in Southport, N. C., and grew up in Mobile, Ala., and in Portland, Maine. She received an A.B. degree from Wisconsin University in 1920 and an M.S. in 1921, and an M.D. degree from Johns Hopkins University in 1924. The next year she interned there in gynecology and surgery. She was assistant in pathology at Yale University Medical School from 1925 to 1926 and assistant resident in gynecology at Johns Hopkins from 1926 to 1928. Dr. Craighill is a specialist certified by the American Board of Obstetrics and Gynecology.

PROCESSING PHYSICIANS, DENTISTS AND VETERINARIANS IN THE FIELD

1. This memorandum from the Officer Procurement Service, Washington, D. C., May 13, supplements the basic instructions on the subject contained in FT-34, Feb. 27, 1943. See also FT-38, FT-40, FT-42, FT-45, FT-47, FT-52, FT-56 and FT-58. See also FT-57.

2. *Change in Processing Procedure for Physicians and Dentists "Selling" Candidates.—a.* Attention is invited to FT-56, May 1, 1943, paragraph 3. It was there announced that, with the approval of the Surgeon General and the War Manpower Commission, the procurement procedure for physicians and dentists whose "availability clearance" forms were received from state Procurement and Assignment chairmen in California, Connecticut, Massachusetts, New York or Wisconsin had been changed so as to permit this service to try to "sell" such individulas on their patriotic duty to take steps to qualify for a commission.

b. The Procurement and Assignment Service, War Manpower Commission, has announced that, effective at once, this "selling" program is authorized to be carried on by Officer Procurement Service with respect to physician and dentist candidates declared "available" in all states in which physicians and dentists, respectively, will be procured in 1943 as indicated in FT-34, paragraph *3a* (1), (2) and (3), and paragraph *3b*.

3. *Appointment of Interns.—a.* Attention is invited to FT-34, paragraph *2b*. To provide for the establishment of a uniform policy for the appointment of Medical School graduates, the Secretary of War has directed:

"Appointments of individuals as first lieutenants, Medical Corps, Dental Corps or Veterinary Corps, respectively, in the Army of the United States may be made on recommendation of the Surgeon General on completion of their academic training at an approved medical, dental or veterinary school without reference to paragraph *7i*, section II, AR605-10, Dec. 30, 1942."

b. The purpose of this direction is to enable the appointment of medical school graduates prior to the completion of their period of internship, although they may not be called to active duty until completion of such period of internship. See the first proviso to paragraph *16i*, OPS Manual for Procurement of Officers (revised through April 15, 1943).

BRITAIN TURNS OVER HOSPITAL TRAIN TO U. S. ARMY

A hospital train of six ward cars and a car for sitting up patients with a capacity of about 300 wounded has been turned over to the U. S. Army Medical Department in Great Britain, the first such train built there for the United States. This "reverse lend-lease project" was formally handed over on March 25 to Brig. Gen. Paul R. Hawley, U. S. Army Medical Corps.

CAPTAIN BROWNING DECORATED

The War Department has announced the award of the Silver Star to Capt. James L. Browning, U. S. Army, formerly of Iron Mountain, Mich., for gallantry in action at Guadalcanal. The award was made by Lieut. Gen. Millard F. Harmon, commander of the U. S. forces in the South Pacific area. The citation reads "James L. Browning, captain, Medical Corps, United States Army, for gallantry in action on Jan. 10, 1943, at Guadalcanal. At the point of exhaustion from a hard overland march, Capt. Browning cared for the wounded far into the night and performed surgery which saved many lives. These duties were performed under constant machine gun fire. Due to overexertion from long hours of work, it was later necessary for Capt. Browning to be evacuated to the rear." Captain Browning later on January 13 was wounded in action also. He was then returned to the homeland, where he is now recovering at Nichols General Hospital, Louisville, Ky.

RECIPROCAL MEDICAL ARRANGEMENTS FOR CANADIAN AND UNITED STATES SOLDIERS

Reciprocal medical arrangements have been made for Canadian and American soldiers whereby personnel of the U. S. armed forces while on duty, leave or furlough in Canada who cannot obtain medical or dental treatment from the United States facilities in Canada will receive free such treatment as is necessary for immediate requirement from the Canadian medical and dental services. If treatment or hospitalization will exceed thirty days, arrangements will be made for transfer, where possible, to the United States. Canadians in the armed forces in the United States who require medical or dental attention will report to the nearest U. S. naval or army hospital, the nearest veterans hospital or Veterans Administration office or to the nearest medical representative of the Veterans Administration. If none of these facilities are immediately available, the Canadian personnel will be admitted to civilian hospitals in the United States. The Canadian legation in Washington will be notified and bills for treatment will be forwarded to the Surgeon General of the U. S. Army, Washington, D. C. Officers of the U. S. Army admitted to Canadian hospitals will pay $1 a day subsistence while patients.

ARMY PERSONALS

Brig. Gen. James S. Simmons, M. C., director of the Preventive Medicine Division, Surgeon General's Office, delivered the commencement address on March 21 at the graduation exercises for Washington University Schools of Medicine, Dentistry and Nursing in St. Louis. The title of the address was "New Horizons in Military Medicine."

The President has been authorized in Senate Bill 872 to appoint Frank T. Hines, for many years administrator of the U. S. Veterans Bureau, to be a brigadier general in the Army of the United States, after which he would be placed on the retired list of the Army. General Hines held that rank before resigning to become head of the U. S. Veterans Bureau.

Col. Walter S. Jensen, M. C., executive officer in the Office of the Air Surgeon, delivered the annual Edwin J. Jarecki Memorial Lecture at Philadelphia on April 29.

MINIMUM EQUIPMENT FOR MEDICAL OFFICERS ORDERED OVERSEAS

The following list of equipment for officers ordered overseas was prepared by Major Albert L. Delaney of the Halloran General Hospital, Staten Island, New York, in collaboration with Major Norman J. Pyle, V. C., and Captain David A. Hornby, A. C.:

The first thought of an officer ordered to overseas duty is "What, in the nature of personal equipment, shall I take?" This will depend in a large measure as to whether you are to go by air or by water. Having traveled both ways, I have listed a minimum that, under most conditions, may be considered a maximum.

First, set your house in order. Execute a power of attorney to one you trust to handle your affairs in your absence. Blank forms for this can be had from the Adjutant General's representative at your camp.

Secondly, make the necessary allotments. Arrange your insurance, both government and private.

Next your will. Owing to differences in state laws, consult a competent lawyer from your home state and have him write the will.

"Keep your mouth shut." This applies from the time you get your orders until you are discharged. Impress your family that you cannot tell them anything and therefore they are not to ask.

Now we come to equipment:

1. Bed roll: Get an air mattress if you can. Do not get kapok. I had one and threw it away.
2. Caps: two field caps (one winter and one summer) and one garrison.
3. Blouse: one.
4. Pants: two olive drab wool, and two cotton khaki; "pinks" optional.
5. Socks: six pair cotton or wool. I favor light wool, as this absorbs perspiration.
6. Shoes: one pair dress shoes, one pair general issue shoes. (Be sure to carry one box of shoe polish.)
7. Shirts: two olive drab wool (not pink or dark green); three cotton khaki.
8. Tie: two regulation type.
9. Insignia: three full sets.
10. Field jacket: one wool lined.
11. Raincoat: one good one; not a trench coat.
12. Overcoat: one olive drab; not the dress coat.
13. Underwear: six shorts, six undershirts; two sets should be wool.
14. Handkerchiefs: six.
15. Sweater: one wool pull-over type, preferably khaki.
16. Razor blades: ten packages.
17. Soap: four bars.
18. Shaving soap: one cake; not tubes or jars. Cakes do not "squash."
19. Tooth powder: one can; cans do not "squash."
20. Mirror: one medium size.
21. Housewife: Be sure to have about six needles, black, white, khaki thread.
22. Cigarets: four cartons.
23. Towels: one face, two bath.
24. Watch: general issue or your own, but it must keep accurate time.
25. Knife: pocket, one good one.
26. Tool kit: A small leather kit is on the market which weighs about 8 ounces and has a hammer, screwdriver, corkscrew and pair of pliers, each of which fits onto a heavy knife handle. It certainly helps.
27. Cigaret lighter: one.
28. Cigaret lighter fluid: one can.
29. Cards, playing: two packs.
30. Money: $100 average, not more than $150.
31. Writing material: one tablet; one package of envelops.
32. Sunglasses: optional. If you get them, get good ones costing $5 to $10.
33. Radio set: Leave it at home.
34. Games: Use your judgment, but usually "no."
35. Ball of stout twine.
36. Pan, rubber: This is on the usual list, but don't take it. Use your helmet. Helmet can be used to scrub up for an emergency operation, incidentally.
37. Gloves, regulation only: one pair.
38. Camera: banned by regulation. Many army personnel have them. Must take your own films.
39. Footlockers: I understand these are on the way out. Use a barracks bag. If you fold your clothes carefully, the barracks bag works fine.
40. Handbag: Get a "volpack" type bag. This carries a "world of stuff," keeps creases in the trousers and is not heavy. The type issued by the Air Corps has a "stiffener" in it and this takes up too much room and weight. Get the loose ones. Marry your musette bag. Don't ever let it get away from you. In it carry an extra shirt, change of sox and underwear, one handkerchief and your last orders.
41. Keep all your orders in one place and fastened together.
42. Keep your pay data card and Adjutant General's Office identification card with you at all times.
43. Use the V mail rather than a regular letter.
44. Atlas: one small one but good one on maps. Optional, but solves a lot of arguments.
45. Nails: one small can of assorted sizes as sold at 5 and 10 cent stores.

Just two "cautions." First, don't buy a lot of trinkets as soon as you land. Wait until you learn to balance United States costs against those of the country you are in. Second, Doctor, hunt cover during an attack. The Red Cross brassard on your arm cannot be distinguished from a plane or by an exploding shell, nor is it respected by a Jap.

No attempt has been made to discuss organization equipment. As a parting word, travel light and you will rest more comfortably.

NAVY

MALARIA FIGHTERS IN CONSTRUCTION BATTALIONS

The U. S. Navy started courses in malaria control for the training of medical officers and hospital corpsmen at the Navy Medical School, Bethesda, Md., as soon as the war in the Pacific began, and malaria control units are now a part of all naval and marine forces in war zones in which malaria is present. These units comprise malariologists, entomologists, sanitary engineers and hospital technicians. Now the Naval Construction Battalions which accompany combat forces have organized malaria control groups within their own battalions, thus providing 110 trained men to fight malaria the moment a construction battalion moves in. A chief petty officer and nine other petty officers, all especially trained in malaria control, in addition to their regular Seabee training, head parties of 10 carefully selected and well trained men each, whose duty it is primarily to eradicate sources of malaria infection. These men, however, are part of the regular construction battalion and when not engaged in malaria control take part in other work.

The training of Seabee men for malaria control which is carried out at Camp Peary, Va., includes among other things instruction in draining, spraying and ditching and in individual precautions against malaria. The prevention of malaria in men landing in an infected tropical area begins with the wearing of head nets and gloves, the use of mosquito repellents and the taking of quinine or atabrine. The spraying of huts, and tents, the screening of shelters and the segregation of infected natives are done when possible.

Rear Admr. Ross T. McIntire, Surgeon General of the Navy, considers, the *Army and Navy Journal* of May 1 says, that malaria is the most serious medical problem of the war. Admiral McIntire has emphasized the need of the navy for medical officers who are skilled in the treatment and prevention of malaria. Commanding officers in tropical areas consider that tools and equipment for malaria control are almost as important as ammunition and food. The Secretary of the Navy, Frank Knox, has directed all navy unit commanders to give disease control priority in operations in tropical combat zones in keeping with the military situation. The Navy has recommended to all medical schools that emphasis be placed in their instruction on the study of tropical diseases, particularly for those students who plan to enter the navy medical corps.

NAVY PERSONALS

Lieut. Howard P. Rome (MC) U.S.N.R., has been assigned to the psychiatric section of the Bureau of Medicine and Surgery and Lieut. (jg) Albert Eskin (MC) U.S.N.R., to temporary duty in the correspondence course section of the Bureau of Medicine and Surgery.

Lieut. Vernon L. Anderson, Dental Corps, U.S.N., formerly dental officer on the U. S. S. *Wasp*, addressed the New York State Dental meeting at Syracuse, N. Y., May 18-20, on "Combat Experiences."

Lieut. Comdr. S. A. Isquith (MC) U.S.N.R., who recently returned from fleet duty, has been detailed as technical adviser to the section of Audio Visual Education, Division of Preventive Medicine, in the production of an instructional motion picture on personal hygiene.

CIVILIAN DEFENSE

SHOES FOR NURSES' AIDES

Nurses' aides needing nurses' shoes can obtain them even though they have spent stamp 17 if there are no unspent stamps available from members of their families, the Office of Civilian Defense announced on April 28. The Office of Price Administration outlined its policy as follows: "The need for special work shoes for nurses' aides has been recognized, and they have been given the same privileges as graduate nurses and other persons who require special shoes necessary for the performance of their jobs. To acquire nurses' white shoes, a nurses' aid must first use her stamp 17. If she has none and no stamps are available from a member of her family, she may apply to her local board for special shoe stamp (on OPA Form R-1703). The use of her stamp or the stamp of a member of her family for such white shoes will not prevent her from acquiring shoes for general wear if she has none or has only one pair and needs two pairs. She may make further application to her board for the shoes needed for general wear in such a case." Nurses' aides are members of the United States Citizens Defense Corps of Civilian Defense who volunteer for hospital duty and are trained under the auspices of the American Red Cross.

PLAN FOR EMERGENCY MEDICAL SERVICE IN INDUSTRIAL PLANTS

In a new bulletin the Medical Division of the Office of Civilian Defense recommends that every plant medical department should prepare a "disaster operations plan" to provide medical service in case of a plant catastrophe involving large numbers of casualties. The new bulletin outlines arrangements which should be made to assure adequate medical care at such times.

The War and Navy Departments urge that plants for which they are responsible plan to use the facilities of the Emergency Medical Service organized by Civilian Defense authorities. The Medical Division has in turn urged that local Chiefs of Emergency Medical Service assist plant medical departments by placing the community medical facilities at their disposal in the event of a major emergency, regardless of its cause.

The disaster operations plan should provide for necessary first aid care at the site of the incident, for adequate ambulance service, and for hospitalization of the seriously injured. Provision must first be made for casualty stations. Several sites should be selected. An additional site outside the plant should be selected for use in the event of extensive damage to the plant.

The importance of identification and records is especially emphasized. The bulletin points out that in any disaster confusion will be inevitable and that it will be difficult, without adequate records, to identify the seriously injured and the dead and to determine the number and names of the missing. The uninjured as well as the injured should be accounted for. A record should indicate the places to which the injured have been taken.

The bulletin recommends that arrangements be made with the local Chief of Emergency Medical Service to insure that ambulances under his direction be made available to the plant should a disaster involve the entire community. Any ambulance facilities owned by the plant should be made available to the local Chief if they are not required at the plant.

Present plans for the hospitalization of industrial accident victims are likely to be inadequate in the event of a major catastrophe. To provide quick and efficient service to injured persons, casualties should be distributed among various hospitals. Arrangements must be made with the local Chief of Emergency Medical Service for the admission of casualties to community hospitals, all of which will be under his supervision during a major emergency.

The plan of mutual aid between a plant and a community requires a definite understanding that members of the Emergency Medical Service will be admitted promptly to a plant in an emergency. Personnel investigated and approved by the Service Command will receive identification cards from the Office of Civilian Defense. The bulletin also outlines the program of federal compensation for injuries to Civilian Defense workers.

MISCELLANEOUS

MEDICAL MISSION TO VISIT RUSSIA

Lieut. Col. Loyal Davis, Chicago, professor of neurologic surgery at Northwestern University, according to the Chicago *Sun* has been named to a six man Anglo-American medical mission to visit Russia. Since Colonel Davis's arrival in London September 6 of last year he has been senior consultant on neurosurgery in the European theater. Another American member of the mission to Russia will be Col. Elliott C. Cutler of Brigham Hospital, Boston, and professor of surgery at Harvard Medical School. Colonel Cutler is senior consultant on general surgery to the American expeditionary force.

MILITARY CASUALTIES AND ACCIDENTS AMONG WORKERS

The National Safety Council, Chicago, stated on April 27 that casualties to the U. S. armed forces since Pearl Harbor had been 12,123 dead, 15,049 wounded and 51,063 missing or prisoners, a total of 78,235. These figures are from the latest report of the Office of War Information, released on April 24. Casualties to American workers through accidents since Pearl Harbor had been 64,500 dead and 6,000,000 injured, on and off the job. The Council offers the comparison as evidence that accidents still are helping the Axis by draining America's manpower. The total American accident toll, workers and others, since Pearl Harbor is 128,000 killed and about 13,000,000 injured, the council said. Among the victims were thousands of skilled workers and key men in the nation's war program. "This huge waste of manpower on the home front is more alarming than ever before," said Ned H. Dearborn, executive vice president of the council, "in view of the fact that the nation is taking increasingly drastic steps to mobilize every available ounce of manpower to insure victory. It is little enough to ask every American to be extra careful these days. No war worker is so unimportant that he can afford an accident."

REGISTRATION OF NURSES IN CANADA

Mrs. Rex Eaton, assistant director of national Selective Service, has announced the result of the registration of graduate nurses carried out by the Canadian Selective Service at the middle of March. A total of 50,455 nurses registered. Registration figures by provinces are as follows: Prince Edward Island and Nova Scotia 3,364, New Brunswick 1,948, Quebec 7,758, Ontario 23,497, Manitoba 2,033, Saskatchewan 2,740, Alberta 3,369, British Columbia 5,744, Yukon 2.

The registration somewhat exceeds the number of graduate nurses thought to be available in Canada. The results will now be made available by Selective Service to the Canadian Nurses Association, at whose request the registration was taken, and also to the Medical Procurement and Assignment Board, which is making a survey of available health services.

THE FOOD RATIONING ORDER

According to Mr. Archie M. Palmer, associate director, Food Rationing Division, Office of Price Administration, General Rationing Order No. 5 is in the process of revision to give hospitals a more equitable allotment of food for patient requirements. Group III of the general rationing order in which hospitals were placed received a point factor of only 0.6, while institutions of involuntary confinement in group II received 1.2, or twice as much. The hospital Bureau of Standards and Supplies, Inc., New York, believe that a point factor of not less than 2.6 is required. While it is believed that the point factor allowed for patients' meals will be substantially increased, hospitals should endeavor to meet their requirements as best as they can under the present order until such a revised order is issued and should file immediately form R-315 for additional allotments required for patients. In most instances it is believed that the local boards will grant a request for additional amounts of processed food when the hospital is able to show that the types of food requested are essential to patient welfare; that the amounts asked for are reasonable, and are based on the following considerations: "That only the rationed foods requested will serve the purpose because, while from a dietary standpoint unrationed foods may be substituted, such substitutes are not available, or (2) they are not within the hospital's budget, or (3) they require additional help or special equipment which is not available to prepare them."

PUBLIC HEALTH UNDER HITLER

Novi List, Sarajevo, of January 28 stated that the Velika Supa of Hum in Mostar has sent a circular to Vrhbosna, stating inter alia: In order to isolate the epidemic of spotted typhus which recently broke out in Mostar and the neighborhood, the municipal health authorities, conjointly with the military authorities, have prohibited access to all persons coming from Sarajevo who are not supplied with a health certificate issued by a doctor confirming that the person concerned is free from spotted typhus, has passed twenty-one days in quarantine and has been vaccinated. This certificate must be confirmed by the chief German army doctor in Sarajevo.

According to DNB (for Europe) of January 15, German official sources drew attention to a disease affecting their armies in Russia. This "plague of Eastern Europe," it is stated, is called "Volhynian fever"—Volhynia being a part of the Western Ukraine—and it was already dreaded by the soldiers in the East during the last war, who styled it "trench fever." It is an epidemic disease the prevention of which is of the greatest importance for the conduct of the war in the East.

The symptoms of this disease vary, but there are always violent attacks of fever, which are accompanied by strong pains in the legs and also in the arms, the head and other parts. From the beginning of the campaign in the East, German medical research has been striving with all means to combat this mysterious disease. These experiments have now met with success and given surprising results, for it has been shown that this "Volhynian fever" is related to malaria. When this plague of Eastern Europe was treated with the well known German malaria cures "atebrin" and "plasmochin," in almost all cases the fever and pains disappeared.

The Swedish newspaper *Nya Dagligt Allehanda* says that Norwegian hospitals are crowded to the bursting point partly because of the ruthless requisitioning of them by the Germans and partly because of increasing illnesses.

According to the dispatch, skin diseases especially are showing an alarming increase. Syphilis, which was previously rare in Norway, is now a common phenomenon, and prostitution is widespread. Diphtheria epidemics rage in several places, especially in the Opland districts. Most of the hospitals in Norway have been requisitioned by the Germans, and as a result sick Norwegians must be treated in schools, meeting halls and similar buildings under conditions which were abandoned a hundred years ago.

In a recent edition of the Swedish newspaper *Arbetaren* it is reported that German authorities have begun forcibly to draft Norwegian nurses for German hospitals in Norway. According to an Oslo report eighty nurses from Aker's hospital who now serve at the temporary Norwegian hospital in Berg's school must go to German hospitals to replace German nurses who have recently been sent back to Germany, where there is a shortage of nurses in the overcrowded hospitals.

Dr. Leonardo Conti, Nazi health leader, writing in the German newspaper *Voelkischer Beobachter* on the tasks and successes of the German state controlled health organization, made the following claims for his organization.

These are the statistics that he presented: "There are at present 1,100 health offices with roughly 12,600 doctors established by the National Socialist state. Another 1,100 doctors are employed by labor authorities and a further 670 doctors by the German Labor Front. Three thousand doctors are attending to the Hitler Youth. There are 1,300 special offices fighting venereal diseases and tuberculosis. 'Mother and child' organizations have at present in all 63,000 advisory offices at their disposal."

ORGANIZATION SECTION

OFFICIAL NOTES

BEFORE THE DOCTOR COMES

The American Medical Association program on Radio Station WLS (890 kilocycles) entitled "Before the Doctor Comes" is on the air Thursday afternoon at 2:45. Mrs. June Merrill interviews Dr. W. W. Bauer, Director, Bureau of Health Education, on common home health problems. The last program, which is entitled "Immunization," will be broadcast on May 27.

DOCTORS AT WAR

Radio broadcasts of Doctors at War by the American Medical Association in cooperation with the National Broadcasting Company and the Medical Department of the United States Army and the United States Navy are on the air each Saturday at 5 p. m. Eastern War Time (4 p. m. Central War Time, 3 p. m. Mountain War Time, 2 p. m. Pacific War Time). An exception is the Chicago area, where the broadcasts are heard by transcription at 10:30 p. m. Saturdays over Station WMAQ.

The titles and guest speakers for the last four programs are as follows:

May 29. "Sick Call."
Speaker, Brig. Gen. John M. Willis, M. C., U. S. Army, Commanding General, Camp Grant, Illinois.

June 5. "Doctors for Tomorrow."
Speaker, Brig. Gen. Fred W. Rankin, M. C., U. S. Army, President of the American Medical Association.

June 12. "Medical Discoveries in Wartime."
Speaker, Dr. Morris Fishbein, Editor of THE JOURNAL.

June 19. "Doctors at War: Report to America."
Special program being arranged. To be announced later.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 897 has been reported to the Senate, proposing an amendment to the Insecticide Act so as to provide that any white powder insecticide or fungicide containing arsenic in its elemental form or in any of its combinations, or fluorine in any of its combinations, shall, unless deemed unnecessary by the Secretary of Agriculture, be considered to be adulterated unless it is distinctly colored in accordance with regulations promulgated by the Secretary of Agriculture. The reported bill exempts from the coloring requirement substances sold for manufacturing, or noninsecticidal or nonfungicidal uses. H. R. 2664 has passed the House, a bill to provide for the training of nurses for the armed forces, governmental and civilian hospitals, health agencies and war industries, through grants to institutions providing such training. This legislation will cease to be in effect on the date of the termination of hostilities in the present war as determined by the President or on such earlier date as the Congress by concurrent resolution or the President may designate, except for certain purposes of adjustment with respect to nurses undergoing training at the time of the termination of hostilities.

Bills Introduced.—The President has submitted to Congress supplemental estimates of appropriation for the United States Public Health Service in the amount of $307,700 (H. Doc. 200). Of this, $219,000 will be used, it is contemplated, for the pay of commissioned officers and $88,700 for the furnishing by the Public Health Service to and at the request of any federal department or independent establishment of coordinating and consultative services with respect to methods and standards for operating emergency health facilities in such department or establishment, including in-service training of such health facilities personnel, and providing employees of such agencies (1) tuberculosis and psychiatric examinations and (2) health and nutrition instruction through lectures and demonstrations. S. 1096, introduced by Senator Bailey, North Carolina, proposes to establish a Bureau of Vital Records in the United States Public Health Service and to transfer thereto the functions of the Division of Vital Statistics of the Bureau of the Census. The bill also authorizes an appropriation of $2,000,000 for each fiscal year to assist states and their political subdivisions to establish and maintain adequate vital record services. H. R. 2669, introduced by Representative Maas, Minnesota, proposes that retired enlisted men of the Army, Navy, Marine Corps and Coast Guard, including members of the Fleet Reserve, shall be entitled to dispensary treatment in any Army or Navy hospital. Where hospitalization is indicated, the bill provides, such retired enlisted men shall be entitled to hospitalization without cost in either Army or Navy hospitals. H. R. 2679, introduced by Representative Chapman, Kentucky, provides that all provisions of existing law and regulations applicable to veterans of World War I be extended to include veterans of the present war and their dependents. H. R. 2703, introduced by Representative Rankin, Mississippi, provides more adequate and uniform administrative provisions in veterans' laws pertaining to compensation, pension and retirement pay, payable by the Veterans' Administration. H. R. 2706, introduced by Representative Kunkel, Pennsylvania, provides for the promotion of officers of the Medical Administrative Corps of the Regular Army to grades up to and including that of colonel.

STATE MEDICAL LEGISLATION

Alabama

Bills Introduced.—S. 22 proposes to require the state board of health to formulate a plan for the care and treatment of indigent persons suffering from cancer and to establish and designate standard requirements for the organization, equipment and conduct of cancer clinics or departments in general or private hospitals, or private clinics of the state. The state board of health would also be required to formulate and put into effect an educational plan for the purpose of preventing cancer throughout the state of Alabama, aiding in the early diagnosis of cancer, and informing hospitals and cancer patients of the proper treatment. S. 40 proposes to require any person who the health officer has probable cause to believe has a venereal disease or has been exposed to a venereal disease to be examined for a venereal disease by the health officer or some other reputable physician. In the event that such person refuses to undergo such examination, he would be committed to a county or city jail on order of the county health officer and detained there until, in the judgment of the health officer, he is no longer a source of danger to the public health. S. 47 proposes to make it unlawful for a person to conduct, maintain or operate an ambulance unless such ambulance is under the immediate supervision and direction of a person holding a first aid certificate or a person legally authorized to engage in the practice of medicine in Alabama. It would further be unlawful for any person to conduct, maintain or operate an ambulance which does not contain and carry with it as a part of its regular equipment a first aid kit or box approved by the American Red Cross and traction splints of a character approved by the American Red Cross. A first aid certificate is defined by the proposal as being one issued by the United States Bureau of Mines or

by the American Red Cross wherein it is stated that the person to whom it is issued has successfully completed the required training and met the established standards of one of such organizations. S. 64 proposes to require all persons between the ages of 14 and 50 residing or living in the state of Alabama to have a blood examination for syphilis by an approved laboratory test. H. 22 proposes to define a general hospital as a hospital or sanatorium that maintains a daily average of 10 or more patients and where general medicine, general surgery, dietetics, obstetrics and the care and nursing of infants and children, and such other subjects as the board may deem advisable, are practiced and taught.

California

Bill Introduced.—A. 1287, to amend the education law, proposes to authorize boards of education to grant health and development certificates to persons holding a certificate of registration as an audiometrist issued by the state board of public health; proposes that the qualifications of an otologist shall be a physician's and surgeon's certificate and a health and development certificate; proposes that the qualifications for an audiometrist shall be a certificate of registration as an audiometrist issued by the state board of public health and a health and development certificate, and proposes that no otologist or audiometrist shall be employed or permitted to supervise the health and physical development of pupils unless he holds a health and development certificate.

Colorado

Bill Enacted.—H. 196 was approved, April 19. It provides that a person who has actually resided in the state for three or more years, who is suffering from tuberculosis in any form requiring treatment and who is without sufficient means to obtain it, may be furnished such treatment out of the tuberculosis fund of the county of the recipient's residence.

Connecticut

Bill Enacted.—S. 562 has become chapter 194 of the Laws of 1943. It authorizes a town board of education to appoint one or more legally qualified practitioners of medicine as school medical advisers and to provide such medical advisers with adequate facilities to provide for public health examinations of individual pupils. It further requires each pupil enrolled in the public schools to have a health examination, either by a legally qualified practitioner of medicine or by the school medical adviser, at least once every three years to ascertain whether such pupil is suffering from any physical disability tending to prevent him from receiving the full benefit of school work and to ascertain whether such school work should be modified in order to prevent injury to the pupils or to secure for the pupils the best education results. Each physician making such examination shall sign each form containing the record of the examination made by him and shall make his recommendations concerning the pupil in writing.

Florida

Bills Introduced.—S. 286 proposes that no license to marry shall be issued to any male or female person in the state of Florida unless such person presents a health certificate showing freedom from any communicable disease. S. 306 proposes the establishment and creation of an institution of higher learning to be known as the University of South Florida, which shall be a state university and shall have as its primary purpose a school of medicine and a school of dentistry and such other departments as may from time to time be determined on and added thereto by the state board of control and state board of education. The proposal would further provide that the school of medicine and school of dentistry should be first class medical and dental schools and should be maintained and operated in accordance with the standards of education approved by the American Medical Association and the American Dental Association. S. 367 proposes the creation of a Florida board of massage to examine persons desiring to practice massage, defined as the art of body massage, either by the hand or by mechanical apparatus, oil rubs, gymnastics, colon irrigations, hot and cold packs, cabinet baths (excluding fever therapy), tub, shower, sitz and similar baths. H. 377 provides, among other things, that in an action at law in which the mental or physical condition of a party is in controversy the court in which the action is pending may order such person to submit to a physical or mental examination by a physician, the order to be made only on motion for good cause shown and on notice to the party to be examined and all other parties, and to specify the time, place, manner, conditions and scope of the examination and the name of the person by whom it is to be made.

Bills Enacted.—S. 139 was approved, May 1. It requires any physician or other person who makes a diagnosis in, or treats a case of, venereal disease to make a report thereof to the state board of health or to the local health officer and to make a further report in the event that such person ceases reporting to the physician prior to his having become cured or rendered noninfectious. S. 141 was approved, May 1. It requires all persons rejected or deferred for military service who are infected with venereal disease to report to venereal disease clinics operated by the state board of health and to take treatment either from a private physician or at public expense for such venereal disease.

Illinois

Bill Introduced.—H. 577 proposes the creation of special educational facilities for educable mentally handicapped children and proposes further that no child shall be eligible for such special education except on the recommendation of or with the approval of a qualified psychologic examiner, defined to mean a person who has graduated with a master's or higher degree in psychology or educational psychology from a higher institution of learning which maintains equipment, course of study and standards of scholarship approved by the Superintendent of Public Instruction, who has had at least one year of full time supervised experience in the individual psychologic examination of children, of a character approved by the Superintendent of Public Instruction, and who has such additional qualifications as may be required by the Superintendent of Public Instruction.

Maryland

Bills Enacted.—S. 360 has become chapter 724 of the Laws of 1943. It provides that no person shall sell, dispense or give away any drug or medicine for the treatment or cure of venereal disease or any sulfonamide drug except on the written prescription of a physician licensed to practice medicine, such prescription not to be refilled except on order of said physician. H. 53 has become chapter 311 of the Laws of 1943. It amends the insurance code by exempting from the provisions thereof any policy or contract granting solely and exclusively hospitalization insurance. The prior law exempted any policy or contract issued by a nonprofit association. H. 76 has become chapter 963 of the Laws of 1943. It repeals that section of the licensing law providing that no county, city or other political subdivision of the state shall require a license to transact any business or occupation which is required to obtain a state license, and creates a new section providing that no county, city or other political subdivision of the state shall require any person, firm or corporation to obtain a permit or license to transact any business or occupation for which it or he is required to obtain a state license, nor shall any county, city or other political subdivision of the state levy any occupational tax or fee on such person, firm or corporation for transacting any such business or engaging in any such occupation for which such state license is required except where such tax is necessary for regulatory purposes in the interest of the public health, safety or morals. H. 644 has become chapter 600 of the Laws of 1943. It places certain limitations on advertising by persons practicing medicine and surgery.

Massachusetts

Bills Introduced.—S. 456 proposes that no female employee shall be dismissed by her employer on account of pregnancy. S. 470 proposes to amend the existing law providing that any license, permit or certificate of registration issued by any department, division, board, commission or officer that expires while the holder thereof is serving in the military or naval service of the United States may be renewed within six months after the termination of such service, by providing that no fee shall be charged or collected for the period between the expiration of the certificate and the renewal thereof.

Minnesota

Bills Enacted.—H. 303 has become chapter 633 of the Laws of 1943. It amends the workmen's compensation act by redefining the word "accident" so as to include "occupational disease" defined as a disease peculiar to the occupation in which the employee is engaged and due to causes in excess of the ordinary hazards of employment, a disease arising out of and in the course of the employment. H. 1239 has become chapter 649 of the Laws of 1943. It amends the law requiring the licensing of any hospital, sanatorium, rest home, nursing home or other institution for the hospitalization of human beings, by bringing within the purview thereof all such institutions as are operated by the state, county or local government or any department, board or agency thereof.

Missouri

Bill Introduced.—S. 154, to amend the workmen's compensation act, proposes that nothing in the act shall prevent an employer from taking the compensation he may be entitled to thereunder and also maintaining a civil action against any physician or surgeon for malpractice.

New Hampshire

Bill Enacted.—H. 32 has become chapter 166 of the Laws of 1943. It provides enabling legislation for the incorporation of non-profit sharing organizations formed for the purpose of establishing, maintaining and operating a nonprofit medical service plan whereby medical service may be provided at the expense of said corporation by physicians to subscribers to said plan under contract entitling such subscribers to certain medical service. The law sets forth the form of contract, method of having rates and contracts approved, method of financing such plans and certain restrictions, among which is the provision that no medical service corporation shall impose any restrictions on physicians who administer to its subscribers as to methods of diagnosis or treatment. The law also provides that no person shall become a participating physician unless he shall be a physician holding a full license to practice medicine in the state of New Hampshire.

New York

Bill Enacted.—A. 1923 has become chapter 691 of the Laws of 1943. It amends the mental hygiene law by eliminating therefrom the existing requirement that the head of the department be a reputable physician with at least ten years' experience in the actual practice of his profession and at least five years' actual experience in the care and treatment of persons afflicted with mental disease in an institution for their care and treatment. In lieu thereof it provides for the appointment of a medical director who shall be a reputable physician, a graduate of an incorporated medical college, with at least ten years' experience in the actual practice of his profession and at least five years' actual experience in the care and treatment of persons afflicted with mental disease in an institution for their care and treatment. The duties of the medical director are to advise with the commissioner on all matters affecting medical policy within the department, have direct charge and control, under the general departmental direction of the commissioner, of medical administration, care and treatment, and of medical and nursing personnel, and perform such other duties in the place and stead of the commissioner as may be lawfully assigned to him.

Ohio

Bill Introduced.—H. J. R. 47 proposes a resolution which would require the submission to the voters of a proposal to amend the state constitution so as to prohibit the levying of an excise tax on the sale or purchase of drugs or medicines prepared or sold by a registered pharmacist in accordance with or under a lawfully issued prescription.

Bills Enacted.—H. 112 was approved, April 29. It amends the law relating to osteopaths by providing for one osteopathic member of the medical examining board and requiring osteopaths to be examined by such board in the subjects of anatomy, physiology, pathology, chemistry and diagnosis, surgery, obstetrics and such other subjects as the board may require and by the osteopathic member in the subjects of materia medica and therapeutics and the principles and practice of osteopathic medicine. Successful applicants will be entitled to practice osteopathy and surgery. Persons now licensed to practice osteopathy but who have not passed an examination before the state medical board will be allowed to continue to practice osteopathy and minor and orthopedic surgery but not to practice major surgery. H. 142 was approved, April 26. It provides that no person shall operate an institution for the care of persons suffering from a communicable disease or persons adjudged to be mentally ill, feebleminded, epileptic or insane within 2,000 feet of any public, private or parochial school.

Oklahoma

Bill Enacted.—S. 98 was approved, April 12. It authorizes a physician legally qualified to practice in the state of Oklahoma to perform a postmortem cesarean section when the physician has reason to believe that the child is viable in the mother. In the performance of such operation, the physician shall not be liable either civilly or criminally, though performed without the consent of those in whom the law has recognized a legal right of the possession of the body of the deceased, provided the operation be performed in good faith and with due skill and without unnecessary injury or mutilation. The law further provides, however, that the operation shall not be performed over the protest of those in whom the law has recognized a legal right to the possession of the body of the said deceased.

Rhode Island

Bills Enacted.—S. 177 was approved, April 28. It amends the law relating to cash sickness insurance by exempting from the provisions thereof employees who adhere to the teachings of any church, sect or denomination and depend for healing on prayer or spiritual means in the practice of religion. H. 533 was approved, April 22. It provides for the creation of a special commission to be known as the Special Rhode Island Public Health Laws Survey Commission, to make a comprehensive reexamination and survey of the public health laws of the state and municipalities thereof and to make recommendations for the complete modernization of those laws in keeping with the most recent innovations and tried practices of other states. Such recommendations must be made in legislative form not later than April 12, 1943. H. 591 was approved, April 22. It provides for the creation of a board of examiners of electrolysis, defined as the removal of, or preventing the growth of, the hair on any part of the human body by means of electrical apparatus. H. 937 was approved, April 27. It amends the basic science law by providing that any person who on April 27, 1940 was pursuing a course of study in any of the healing arts in a professional school then approved by the division of examiners in the department of health, but who had not previously completed at least one year of preprofessional collegiate education and training in an accredited academic college and who was at the time of entrance into such professional school a legal resident of Rhode Island and who can meet all the other requirements provided by this act, shall be eligible for examination by the basic science board. H. 946 was approved, April 22. It requires any physician who discovers that a patient between the ages of 4 and 16 is suffering from deafness or shows indications of being or becoming hard of hearing to report immediately his findings, together with the name and address of such child, to the director of health along with such other information as the director may require.

Wisconsin

Bills Introduced.—S. 305, to amend the law relating to medical aid to old age assistance recipients, proposes that medical, hospital, surgical and dental aid or Christian science treatment to a beneficiary may in the discretion of the county pension department be authorized and paid for directly to the person or firm furnishing such care. A. 611, to amend the law relating to the licensing of nurses, proposes the addition thereto of conditions and requirements for the licensing of "licensed attendants" who would be authorized to perform simple procedures in the physical care of a patient and such other procedures as may be directed by the attending physician.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Dr. Tainter Joins Winthrop Company.—Dr. Maurice L. Tainter, since 1935 professor of pharmacology at Stanford University School of Medicine and since 1934 professor of pharmacology and head of the division of physiologic sciences, College of Physicians and Surgeons, School of Dentistry, San Francisco, has been named research director of the Winthrop Chemical Company, Inc. Dr. Tainter will make his headquarters at the company's plant and laboratories in Rensselaer, N. Y. In making the announcement, Dr. Theodore G. Klumpp, president of Winthrop, stated that Dr. Tainter's appointment implements the policy of research expansion by Winthrop. Dr. Tainter was born in Carroll, Iowa, in 1899. He graduated at Stanford in 1925. Prior to assuming his professorship at Stanford he served successively as assistant in pharmacology, instructor, assistant professor and associate professor. He has written many scientific papers and is the editor of the *Stanford Medical Bulletin* and a member of the editorial board of *California and Western Medicine*.

Public Health Meeting.—A public health conference of the Southern California Public Health Association will be held at the Pasadena Civic Auditorium May 24. Among the speakers will be Dr. John L. Rice, New York, on "Wartime Trends in Public Health"; Dr. Karl F. Meyer, San Francisco, "Problems Relating to Communicable Disease Control," and Nathan Sinai, D.P.H., Ann Arbor, Mich., "Medical Care During the Emergency and Postwar Periods." A round table discussion on "Methods of Solving Present and Future Public Health Problems" will be conducted by Dr. Robert Hughes Parry, Bristol, England; Dr. Rice; Dr. Edith P. Sappington, San Francisco; Dr. Don W. Gudakunst, New York; Dorothy Deming, R.N.; Dr. Sinai; Dr. Wilton L. Halverson, San Francisco; Dr. Albert S. McCown, Washington, D. C., and Raymond H. Greenman of the American Social Hygiene Association, Washington, D. C. Dr. Parry will discuss "Organization of a City's Health and Medical Services Against Air Raids" at the evening session and Dr. McCown "The American Red Cross in a War Torn World."

DISTRICT OF COLUMBIA

Annual Scientific Assembly.—"Medical Progress Since Pearl Harbor" will be the theme of the fifteenth annual scientific assembly of the Medical Society of the District of Columbia to be held at the Mayflower Hotel, September 30-October 2. Dr. Harry H. McNitt, Washington, is general chairman of the committee on arrangements.

The Davidson Lecture.—The Medical Society of the District of Columbia announces that the seventh Davidson Lecture is to be given October 13. Physicians and scientists who wish to compete for the privilege of being the lecturer are asked to submit an essay to the secretary of the society not later than July 1. In case no essay is found worthy, the subcommittee will declare no award and the lecturer will then be selected by the full executive board of the society.

GEORGIA

Member of State Board Honored.—Robert Foster Maddox, member of the state board of health for twenty-nine years and chairman for twenty years, was honored at a recent meeting of the board when, in recognition of his services, his fellow members presented a portrait of him to the state of Georgia, to be hung in the library of the Georgia Department of Public Health. The picture was accepted on behalf of the state by Dr. Thomas F. Abercrombie, Atlanta, state director of public health.

Outbreak of Smallpox.—The state department of public health announced that an outbreak of 9 cases of smallpox in a single county in northeastern Georgia was recorded recently. The source was traced to a person visiting in the home of a relative. The relative became ill while visiting at a friend's house and for some time was unaware of the nature of his illness. Of the 8 persons who subsequently contracted the disease, 3 were members of the family he was visiting and 5 had either visited him during his early illness or had been in contact with those who had.

ILLINOIS

District Meeting.—The annual meeting of the Iowa and Illinois Central District Medical Association will be held at Rock Island on May 27. The speakers will include Major Lindon Seed, M. C., A. U. S., on "Use of Intravenous Fluids and Blood"; Dr. Italo F. Volini, Chicago, "Clinical Observations on Heart Disease," and Dr. Charles F. McKhann, Ann Arbor, Mich., "Progress in the Control of Communicable Disease."

Chicago

Dr. Fernel in Trouble Again.—A criminal information was filed, April 29, by U. S. Attorney J. Albert Woll charging Dr. Jean Paul Fernel, former self-styled plastic surgeon, with violation of the Federal Food, Drug and Cosmetic Act of 1938, the Chicago *Tribune* reported. The information alleges interstate shipments of food and drugs which were misbranded. The newspaper reported that Federal Judge Philip L. Sullivan fixed bond for Dr. Fernel at $2,500. Dr. Fernel's license to practice medicine was revoked in 1938.

Mayor Requested to Appoint a Noise Commission.—The appointment by the mayor of a municipal noise commission was requested on May 7 by the City Club of Chicago in a letter sent to Mayor Kelly by Herman L. Ellsworth, president of the club. The noise abatement committee of the club, headed by Thomas H. Coulter, is applying itself to the problem of noise reduction and, with the cooperation of the city administration, is endeavoring to enlist the help of all citizens in the elimination of unnecessary noise. With the declaration by the mayor of Chicago's participation in National Noise Abatement Week, May 30-June 5, the city will compete for the awards, given each year by the National Noise Abatement Council, to that city in each of four population groups which submits on or before July 1 the most convincing evidence of accomplishment in the elimination of unnecessary street noise and in the control of noises in industry, offices and the home during the period of June 7, 1942 to June 5, 1943.

New Alcoholic Service.—A special alcoholic service was recently opened at the Chicago State Hospital. The unit consists of 20 beds to be used for patients of a special type in whom the prospect of rehabilitation is especially good, the majority of beds to be available for patients who give prospect of benefiting from the Alcoholics Anonymous technic. A small number of beds will be available for patients who will receive the "conditioned reflex" treatment. Every effort will be made to keep these two separate functions of the alcoholic ward distinct from each other. The program is similar to one which has been carried out at the Manteno State Hospital, Manteno, Ill. Members of the Alcoholic Anonymous will select a special committee to carry on the program. They will select the cases to be treated, but the hospital will reserve a right to veto such nominations should they exceed the number to be handled or should they appear to be the wrong type of patient. The office of Alcoholics Anonymous is at 209 South State Street. Any patient who is not suitable for the special treatment in the special alcoholic service but who is in need of state mental hospital care because of mental illness can be committed through the usual court procedures in any of the nine Illinois state hospitals located at Elgin, Kankakee, Manteno, Peoria, East Moline, Jacksonville, Alton, Anna and Chicago.

INDIANA

Gift Provides New Department of Pediatrics.—The late George Wesley Longsworth and his wife, Emma Dennis Longsworth, Fort Wayne, have provided for a gift of $63,000 to the new Parkview Memorial Hospital, Fort Wayne. The money will be used for the children's department and will include a section embracing a wing of the third floor to be known as the George Wesley and Emma Dennis Longsworth Department of Pediatrics. The proposed Parkview Memorial Hospital will cost $800,000 and will replace the present Methodist Hospital, Fort Wayne, newspapers reported.

KENTUCKY

Management of Gonorrhea.—Dr. Percy S. Pelouze, assistant professor of urology at the University of Pennsylvania School of Medicine, Philadelphia, and consultant for the gonorrhea control program for the U. S. Public Health Service, opened a series of lectures in Louisville, May 3, on the management and treatment of gonorrhea. Dr. Pelouze will spend the month of May in Kentucky, speaking at various places throughout the state.

MASSACHUSETTS

Boston Floating Hospital Admits Paying Patients.—The board of trustees of the Boston Floating Hospital recently ruled that the hospital can now admit patients to the wards who are able to pay part of their hospital costs. As a result, the administrative officers of the hospital are working out a plan whereby all patients admitted will be allowed to pay whatever they are able toward these costs. During the early years of its existence, when the hospital was maintained entirely by private funds, an endowment fund was accumulated. In 1929-1930, when the New England Medical Center was formed, funds from the campaign were used mostly in erecting the present building of the Boston Hospital, in remodeling and refinishing parts of the old Boston Dispensary and in the erection of an additional building of five stories, three of which are used by the Boston Dispensary for clinics and laboratories and two of which are used by the hospital to house the nurses. The hospital is the outgrowth of the barge *Clifford*, which in the summer of 1894 made five excursions into Boston Harbor, taking aboard mothers and their sick babies and children. After a day's outing they were returned to shore in the late afternoon. The following year the barge was purchased and daily trips were made. In 1896 the boat became a real hospital, as, in addition to the people who were taken for the daily cruises, permanent wards were established, physicians were aboard and a training school for graduate nurses was begun. In 1906 a boat designed as a hospital ship was built. This served as the Boston Floating Hospital until the boat was burned in 1927. During this time, in addition to the outing for the babies from the crowded sections of Boston, work in the study of infectious diarrheas of infants was done aboard the boat. Following the burning of the boat in 1927 it was decided not to rebuild the hospital ship. Sometime later the Boston Floating Hospital became associated with the Tufts College Medical School and the Boston Dispensary to form the New England Medical Center. In 1931 the present building of the Boston Floating Hospital, located adjacent to the enlarged and remodeled Boston Dispensary, was opened. During the time the hospital ship was maintained and during the early years of its on-shore activity the Boston Floating Hospital was entirely charitable in that no patients were admitted to the hospital who could afford to pay anything for their care. Four years ago a 4 bed semiprivate ward was opened in the hospital to which private patients and semiprivate ward patients could be admitted.

MICHIGAN

Alumni Clinic Day.—The annual Alumni Clinic Day of Wayne University College of Medicine was held at the Horace H. Rackham Educational Memorial Building, Detroit, May 12, with the following speakers:

Dr. Fredrick F. Yonkman, Detroit, Doctors and Drugs on the Civilian Front.
Dr. John J. Prendergast Jr., Detroit, Medical Problems of the War Workers and Their Management in Your Practice.
Dr. Oliver Cope, Boston, Use of the Latest Methods in the Treatment of Burns with Experience Gained from the Boston Night Club Fire.

A panel discussion was held on "Problems and Recommendations Concerning the Hospitalization of Your Patient." In the evening, with Dr. Patrick L. Ledwidge, Detroit, toastmaster, Harold E. Stewart, Ph.D., department of geography at Wayne, spoke on "Geopolitical Aspects of American Security."

NEBRASKA

Symposium on Obstetric Analgesia and Anesthesia.—The department of obstetrics and gynecology of the University of Nebraska College of Medicine, Omaha, will present a symposium on obstetric analgesia and anesthesia at the University of Nebraska Hospital, Omaha, May 28. Among the speakers will be:

Dr. Frank W. Hartman, Detroit, Tissue Changes Observed Under Deep Sedation and Anoxemia.
Robert A. Hingson Jr., passed assistant surgeon, U. S. Public Health Service, Continuous Caudal Analgesia and Anesthesia in Obstetrics.
Dr. Norman R. Kretzschmar, Ann Arbor, Mich., The Obstetrician's Point of View of Analgesia and Anesthesia.
Dr. Arthur H. Parmelee, Oak Park, Ill., The Pediatrist Looks at Obstetric Analgesia and Anesthesia.

A session entitled "Painless Labor, Please" with Dr. Earl C. Sage, Omaha, as the moderator will be handled by the speakers participating in the symposium.

NEW YORK

Actions Taken at State Meeting.—Dr. Herbert H. Bauckus, Buffalo, was chosen president-elect of the Medical Society of the State of New York at its annual meeting in Buffalo on May 4 and Dr. Thomas A. McGoldrick, Brooklyn, was installed as president. The society adopted a resolution urging that citizenship be made a requisite for licensing as a doctor in New York State. Another resolution, which pointed out that "the problems of food in this country, as well as the world at large, are the concern of the medical profession," urged the American Medical Association to request representation at the United Nations Food Conference. The house of delegates of the society also urged the board of regents to "limit the number of examinations that may be taken by any candidate for licensure to practice medicine to three in all" and to refuse to admit "to examination for licensure any graduate of a foreign medical school 25 or more per cent of whose graduates, taking the examination during the past ten years, have failed to pass." Other resolutions adopted urged that the director of the bureau of workmen's compensation be appointed by the state society on a full time basis at a salary of $15,000 a year and "unreservedly condemning and repudiating all unethical activities under the workmen's compensation law." The society also voted unanimously to appoint a committee to formulate a long range program "providing medical care for all, under the leadership of the medical profession." The new committee will be known as the Planning Committee for Medical Policies and will have "wide powers to study all phases of economic matters affecting the profession and the public, including provision for the rehabilitation and the reconstruction of individuals now in the community or returning from war services." The committee will consist of six members appointed by the speaker of the house of delegates, the president, the president-elect, the secretary, the speaker and the chairman of the board of trustees or a member of the board designated by him.

New York City

Academy Given Goldsmith Collection.—Mrs. Lesta Ford Clay recently gave the New York Academy of Medicine a collection of more than one hundred editions of the Vicar of Wakefield by Oliver Goldsmith in memory of her father, Dr. Linsly R. Williams, a former director of the academy. The collection has been on display in the library of the academy of medicine.

Dr. Urey Awarded Franklin Medal.—Harold C. Urey, Ph.D., professor of chemistry at Columbia University, received the Franklin Medal, April 21, for his discovery of an "isotope of hydrogen of mass 2 which has resulted in the opening of new fields of knowledge in three of the physical sciences." The presentation was made at the annual medal day ceremonies of the Franklin Institute, Philadelphia.

Dr. Sheehan Named Acting Dean of New York University.—Dr. Donal Sheehan, professor of anatomy at New York University College of Medicine, has been named acting dean during the absence of Dr. Currier McEwen, who has been granted leave as dean to serve as a lieutenant colonel in the medical corps of the Army of the United States and executive officer of the Bellevue Hospital Affiliated Unit, the First General Hospital. Dr. Clarence E. de La Chapelle, professor of clinical medicine at New York University, will act as assistant dean in place of Dr. John Mulholland, who was granted a military leave last October to take charge of the surgical service of the Bellevue Unit.

TEXAS

Special Society Election.—Dr. Titus H. Harris, Galveston, was elected president of the Texas Association for Mental Hygiene at a recent meeting with the Texas Social Welfare Association in Dallas. Other officers are Robert L. Sutherland, Ph.D., Austin, and Talma W. Buford, Minter, vice presidents, and Miss Lucile Allen, Dallas, secretary-treasurer.

Field Workers Examined for Tuberculosis.—Migrant field workers who seek employment in Michigan and neighboring states are being given x-ray examinations in Dallas and San Antonio in offices which were opened on April 15. The bureau of tuberculosis control of the Michigan Department of Health, Lansing, has been supervising this program for the past five years in an effort to prevent the entry of tuberculous workers into Michigan and neighboring states. Most of the persons who are examined in the Texas offices of the bureau are naturalized Mexicans living in Texas.

VIRGINIA

Dr. Perrow Dies.—Mosby Garland Perrow, Ph.D., director of the Lynchburg Department of Public Welfare and the Lynchburg Bureau of Public Health, died suddenly on February 26, aged 66, of cerebral hemorrhage. Dr. Perrow received his degree of doctor of philosophy in 1908 from Washington and Lee University, Lexington.

Personal. — Anthony J. Borowski, Dr.P.H., until recently chief of the health section of the Federal Works Agency, Works Progress Administration, Washington, D. C., has been appointed chief clerk and statistician of the division of records and statistics of the Richmond Department of Public Health. ——Dr. William Dandridge Haden, who has not been in active practice for a number of years, recently retired from the civic life of Charlottesville, where he had served three terms as mayor and twelve consecutive years as a member of the city council.

WEST VIRGINIA

State Venereal Disease Project. — Camp Fairchance in Boone County, which has been in operation for several years as a camp for underprivileged children, has been designated as a venereal disease center by the state department of health and will be converted into a hospital just as soon as federal funds are available. Establishment of the center for the treatment of venereal disease among prostitutes was authorized by the 1943 legislature. Under the act, prostitutes from any county in the state may be confined for treatment. Dr. Clifton F. McClintic, Charleston, state health commissioner, has made application under the Lanham Act for $200,000 a year for the operation of the new center. The program has the full support of the War Department and the U. S. Public Health Service.

GENERAL

Meeting Canceled.—The annual meeting of the American Gynecological Society which was to be held in Hershey, Pa., May 31-June 2, has been canceled because of the difficulties of wartime travel.

Meeting of Ophthalmologists.—The seventy-ninth annual meeting of the American Ophthalmological Society will be held at The Homestead, Hot Springs, Va., June 10-12. Among the speakers will be:

Drs. Sanford R. Gifford, Irving Puntenney and John G. Bellows, Chicago, Notes on Keratoconjunctivitis Sicca.

Dr. Conrad Berens and Edith L. Nilson, New York, Relationship Between the Bacteriology of the Conjunctiva and Nasal Mucosa: Especial Reference to Certain Extraocular Inflammatory Diseases.

Dr. Jonas S. Friedenwald, Dr. Heinz Herrmann and Robert Moses, Baltimore, The Distribution of Certain Oxidative Enzymes in the Ciliary Process.

Drs. John N. Evans and Eli Jefferson Browder, Brooklyn, Problem of Split Macula: A Visual Field Study.

Drs. Grady E. Clay and James Mason Baird, Atlanta, Ga., Ophthalmoscopic Classification of Hypertensive Diseases.

Drs. Lawrence T. Post and Theodore E. Sanders, St. Louis, Temporal Arteritis: Case Report with Eye Findings.

Dr. Algernon B. Reese, New York, The Significance of Pigment Freckles on the Iris Associated with Malignant Melanoma of the Uvea.

Dr. Placidus J. Leinfelder, Iowa City, Choked Disks and Low Intrathecal Pressure Occurring in Brain Tumor.

Society of Clinical Pathologists.—The annual session of the American Society of Clinical Pathologists will be held at the Drake Hotel, Chicago, June 3-6, under the presidency of Dr. Harry Goldblatt, Cleveland, whose address will be entitled "The Clinical Pathologist as an Experimenter." Among the speakers will be:

Drs. George R. Dochat and James W. Kernohan, Rochester, Minn., Prognosis in Carcinoma of the Stomach Based on Dukes-Broders Combination of Grading.

Dr. George H. Hansmann and Marion Tully, M.T., Milwaukee, Cat Bite and Scratch Wounds with Consequent Pasteurella Infection in Man.

Drs. Horace M. Banks and Harold F. Dunlap, Indianapolis, Case of Sarcoidosis.

Dr. Harry J. Corper and Maurice L. Cohn, Ph.D., Denver, the Virulence of Tubercle Bacilli and the Fallacy of Assuming the Grade of Virulence from Arbitrary Designations.

Drs. Frank W. Hartman and Harvard L. Romence, Detroit, Liver Necrosis in Burns.

Dr. Morris Fishbein, Editor, THE JOURNAL, Trends of Medical Practice in the Postwar Period.

Special features will include a symposium on cirrhosis of the liver on Saturday and a tumor seminar on Sunday. Dr. Max M. Strumia, Bryn Mawr, Pa., will discuss "The Role of Plasma Transfusion in Medical Problems Not Related to the State of Shock." The paper was chosen by the general research committee of the society as the Ward Burdick Award Contribution for 1943.

Central Source of Information on Infantile Paralysis.—The National Foundation for Infantile Paralysis is, with the cooperation of other agencies, developing the only complete central authentic source of information on infantile paralysis in the world. A complete bibliography of all scientific literature that ever has been published pertaining to infantile paralysis is being compiled by the foundation and is expected to be ready for publication in book form in the early part of 1944. The first volume will contain a record of all scientific material on poliomyelitis published in the world up to the end of 1943. Subsequently the data will be kept up to date by publication of annual supplements. Brief abstracts of the more important articles will be included in the bibliography to be published by the foundation. The collection will serve to acquaint research workers with investigative work that has already been carried out and will make available complete information pertaining to the disease, including articles published in any language. Data which were assembled by the International Committee for the Study of Infantile Paralysis, organized by Jeremiah Milbank in 1928 and assembled in the library of the New York Academy of Medicine, has been turned over by the academy to the National Foundation for inclusion in the new publication. The committee, which is now extinct, collected data pertaining to all literature on poliomyelitis that had been published up to 1932. The compilation of the information is being carried out for the foundation with the aid of the library of the American Medical Association and the John Crerar Library, both in Chicago, under the direction of Dr. Morris Fishbein, Editor of THE JOURNAL, and Dr. Ludvig Hektoen, Chicago, editor of the *Archives of Pathology*. Assisting in carrying out the work in Chicago is Miss Ella Salmonsen, medical librarian of the John Crerar Library.

CANADA

The Jackson Memorial Lecture. — Philip Bard, Ph.D., professor of physiology, Johns Hopkins University School of Medicine, Baltimore, delivered the annual Hughlings Jackson Memorial Lecture of the Montreal Neurological Institute, April 28. His subject was "Rerepresentation as a Principle of Central Nervous Organization."

LATIN AMERICA

Personal.—Dr. Victor Fernández Manero, chief of the Federal Deportment of Health in Mexico, Mexico City, was recently presented with the diploma and the gold medal of a fellow honoris causa of the International College of Surgeons as a token of national appreciation for his work on public health in Mexico.

Educational Exhibit for Museum of Hygiene. — The Cleveland Health Museum, of which Dr. Bruno Gebhard is director, has completed a nineteen piece educational exhibit for the National Museum of Hygiene, Mexico City. The display includes all models of the Cleveland Museum's original traveling exhibit "Food for Health" and in addition new displays on digestion, dentistry, circulation and tuberculosis control. It was prepared at the instigation of Dr. Gustavo Uruchurtu A., director of general health education of the department of public health of Mexico City, on the recommendation of Dr. Manuel Urrutia, director of the National Museum of Hygiene of Mexico, during his internship at the Cleveland Health Museum. The Mexican exhibit is entirely in Spanish.

Deaths in Other Countries

Albert Grant Fleming, Montreal, Que., Canada; University of Toronto Faculty of Medicine, 1907; Strathcona professor and chairman of the department of public health and preventive medicine and formerly dean of the faculty, McGill University Faculty of Medicine; fellow of the American Public Health Association and in 1938 vice president; served as president of the Canadian Public Health Association; in 1935 appointed secretary of the health insurance committee of the British Columbia College of Physicians and Surgeons; in 1908 joined the city health department of Toronto as bacteriologist and later director of medical services, including the medical and dental inspection of school children; served as medical officer in the armed forces of Canada during World War I; in 1921 became deputy medical health officer of Toronto; member of the board of health of the city of Montreal; medical director of the Bell Telephone Company of Canada; received the doctor of public health degree from the University of Toronto in 1914; aged 55; died, April 9, in the Montreal Neurological Institute of brain tumor.——**Dr. Antonio Cardoso Fontes,** formerly director of the Instituto Oswaldo Cruz, Rio de Janeiro, died March 27, aged 63.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 10, 1943.

Warning on Use of Warmth for Treatment of Shock

In the *Army Medical Bulletin* the warning is given that the enthusiastic application of heat for shock has inherent risks. The blood volume nearly always diminishes after severe injuries, because fluid has left the vessels either by hemorrhage or by oozing into damaged tissues or both. The consequent fall in blood pressure brings into play a vasoconstrictor mechanism which raises pressure by reducing the capacity of the vascular bed. It is not yet certain which parts of the vascular system are affected by this vasoconstriction, but undoubtedly the cutaneous circulation is much diminished and its capacity is considerable. Even in a normal person warming may increase the blood content of the skin by as much as a pint. When the superficial vessels are already constricted, far more than a pint may be brought to the surface and diverted from vital functions. Hence excessive warming may interfere with the body's endeavor to restrict its total vascular capacity and make a little go a long way. It may also accelerate loss of fluid from the surface by evaporation and sweating; it may accelerate metabolism of skin and muscle and thus jeopardize structures whose blood supply is impaired by local injury; and it may promote autolysis of damaged tissues and absorption of autolytic products. Experimentally it has been shown that general and vigorous heating of injured animals decreases their chance of recovery and hastens their end. The application of cold, on the other hand, though it lengthens their period of survival, does not increase their chance of recovery. Thus theory and experiment agree that casualties should be warmed in a conservative manner with blankets and hot water bottles applied after removal of wet clothes. More potent means of heating, such as a heat cradle, may be used when blood volume is being, or has been, restored by transfusion. But the heat should never be so great as to cause sweating, and limbs with injured blood vessels or gangrene should not be warmed at all. As far as the "cold" of shocked patients is compensatory, it is a symptom that should not be treated energetically unless its cause—reduction of blood volume—can be treated at the same time. Whereas warming plus transfusion gives excellent and prompt results, warming alone may be carried too far and lead to vasodilatation, circulatory collapse and death.

The Water Problem in Shipwreck

The Medical Research Council has issued "A Guide to the Preservation of Life at Sea After Shipwreck," which naval officers and physicians cooperated in producing. Advice is given with regard to everything which can arise, including routine preparations and precautions in the ship, abandoning ship, procedure in the lifeboat, lifeboat ailments, treatment of the sick and wounded, steps toward rescue and treatment after rescue. It is pointed out that water is more important than food. Masters who have appreciated its importance have improvised as much as 120 gallons per boat. The ration of water depends on the likelihood of being picked up. If this is not likely to happen for a week, no water need be given in the first twenty-four hours unless the men have been sweating from hot weather or exhaustion. The ration recommended is 18 ounces per man daily, which should be continued until there is 1 pint per man in hand. The ration must then be reduced to 2 ounces daily. The experience of survivors suggests that moistening the lips and washing the mouth with sea water are helpful and also that small quantities of sea water can be used for soaking biscuits. But large drafts of sea water cause death, and even small amounts may prejudice the chances of survival. Permission to drink sea water, therefore, should never be given. Rectal administration does not relieve thirst and is harmful. Every drop of rain water should be collected, and no vessel which can hold water should be thrown away. Pools of water formed on melted ice or on ice floes, provided they are not brackish from salt water spray, may be drunk. The drinking of urine is harmful and should be forbidden. When water rations are low, the food rations should consist mainly of fats, starches and sugars and should contain little protein.

Rehabilitation and Resettlement of the Disabled

The Emergency Medical Service was established by the government for the treatment of casualties from air raids among the civilian population, which were expected on a scale much greater than occurred. This led to a great interest in rehabilitation. In January 1942 the minister of labor and national service announced that the government had decided to prepare as soon as possible comprehensive measures for the rehabilitation, training and resettlement of disabled persons generally. An exhaustive report by a committee of government officials appointed to consider the subject has just been published. It states that rehabilitation of a person disabled by injury or sickness is not solely a medical problem. When restoration in the medical sense is achieved, the services of the social and industrial expert are required, first, to determine in consultation with medical experts whether the patient can return to his previous occupation and, if not, what other occupation would be most suitable (for which there should be training facilities) and, second, to insure that the restored capacity is used to the best advantage. Thus there is a transfer of responsibility from the medical to the industrial services, but the latter should begin to operate before the former ends. A notable step to this end is the linking for the first time of the hospitals and the employment exchanges. This will be assisted by the continuation into the postwar period of the specialized centers for particular types of disability adopted by the Emergency Medical Service.

Under the emergency service twenty-one orthopedic centers have been established, about half of which are permanent orthopedic hospitals carrying on their peacetime functions in addition to emergency work. There is a full range of facilities, including occupational therapy and workshops. There are sixty hospitals under the emergency scheme for fractures at which these facilities are available but not in such a complete form.

Sir St. Clair Thomson

Sir St. Clair Thomson, who has been described as the Nestor of the British school of laryngology, has died at the age of 83 years as the result of an accident. He was trained in laryngology at the famous school of Vienna by Schotter, Stoerk and Hajek, as well as by the otologist Pollitzer. In his old age Hajek fell a victim to Nazi persecution. Like many others, neither his age not his eminence saved him. He became an exile in England and it was a pleasure to Thomson to repay his debt to his teacher by welcoming and acclaiming him in laryngologic circles. In 1893 Thomson settled in London and was appointed physician to the Throat Hospital, Golden Square. In 1905 he became physician in charge of the department of laryngology and in 1908 professor at King's College. But in 1903 he was attacked with tuberculosis of the larynx and was probably the first patient in this country to carry out the treatment of complete silence. This was one of the two diseases, the other being cancer of the larynx, to which he devoted the greatest attention. For the latter he did much to establish the operation of laryngofissure. His technic was followed all over the world. In 1927 he showed at the Royal Society of Medicine four physicians on whom he had performed this operation. They were all active in their profession. He taught that,

properly carried out, the operation should be free from danger. In 1910 he reported the first case in this country of removal of a shawl pin, with the aid of endoscopy, from a secondary bronchus. An excellent teacher and writer, his textbook Diseases of the Nose and Throat, first published in 1911, became famous. In 1937 a fourth edition appeared, in which he was assisted by Mr. V. E. Negus. He published many papers on various subjects of his specialty and was the European editor of the *Laryngoscope*. A cultured man of great personal charm and an accomplished linguist, he was in demand at international congresses, where he often served as an interpreter. At the International Medical Congress held in London in 1913 he was president of the section of laryngology and was able to welcome the members of each national group in their own language. He was corresponding honorary member of most of the laryngologic societies of the world. He was president of the Laryngological Section of the British Medical Association three times. In 1926 he was presented with a loving cup by 175 of his fellow laryngologists, which perhaps pleased him most of all his distinctions. He then said that he had two ambitions—to till to the best of his ability the small corner of the field of medicine in which he worked and to have the esteem and possibly the affection of his fellow workers. He attained both ambitions in the fullest degree.

SWITZERLAND

(From Our Regular Correspondent)

April 3, 1943.

Surgery of the Aged

Surgery of the Aged was discussed in the Medical Society of Basel by Prof. Dr. F. Merke, who said that the progressive overaging of the population makes it necessary for physicians to concern themselves more with the diseases of old age. Even though the forecasts made by mathematicians and statisticians for coming decades might be doubted, they nevertheless are to a certain extent correct with regard to the present trends in age distributions of populations. In the last three decades, populations have shown a tendency to become overaged. Internists have for some time given more attention to geriatrics. Surgeons too have given it more attention recently. To obtain a picture of the risk of surgical interventions in old patients a survey was made on all persons over 60 who were operated on at the St. Clara Hospital in Basel. The total number was in excess of 800. It was hoped that the survey would reveal whether the risk is really as much greater as is often assumed, even among physicians. The following factors were ascertained: In a group of the most severely threatened, the patients with gastric carcinoma, resection actually has a relatively high mortality risk. Ten fatalities occurred in 29 resections (34.5 per cent). In these cases tumor cachexia is added to the physiologic weakness of old age, which further reduces the resistance. The risk involved in the resection of gastric ulcer is slightly less in these old patients. Whereas the mortality was only 4.7 per cent in 105 ulcer resections in patients less than 60 years old, it reached 20 per cent in 15 who were over 60 years old. Of course, these were especially severe cases, that is, ones in which simple gastroenterostomy would have been altogether insufficient. Acute appendicitis, contrary to the opinion of some authors, is not as rare in the aged as is often assumed. Extensive statistics from England and America reveal that from 1 to 2 per cent of all attacks of acute appendicitis occur in persons over 60 years of age. The mortality is given as between 20 and 50 per cent. The Mayo clinic reports a mortality of 16 per cent in 82 cases. The author's own observations involve 44 cases with a mortality of 18 per cent. In mammary carcinoma (50 cases over the age of 60) the mortality was only 8 per cent. In 53 struma resections in patients over 60, in whom the operation was as a rule not performed for cosmetic reasons but on account of severe tracheal compression or substernal strumas or because of relapses in exhausted or hypertensive persons, the mortality was 5.7 per cent. Prognosis was favorable in femoral and umbilical hernias as long as these were not incarcerated. There was not a single fatality in 29 nonincarcerated hernias in persons between 60 and 85 years of age; only 3 incarcerated hernias terminated in death. The prognosis is exceptionally good for nonincarcerated inguinal hernias: not a single fatality occurred in 60 patients between 60 and 89 years of age; in 12 incarcerated inguinal hernias in patients of the same age there was 1 death of gastric hemorrhage.

It is important to know that in the presence of tumor cachexia and in urgent operations on the aged the risk of operation is actually greater but that in nonurgent operations and in the absence of other severe defects there is no increased risk for aged persons, and such patients can be subjected to surgical intervention with a calm conscience. Careful preliminary treatment, anesthetization and after-treatment are prerequisites for good results.

Epidemic Poliomyelitis

According to investigations of the Swiss health authorities, the collecting depots had all together 16 liters of convalescent serum. The Children's Clinic of the University of Basel no longer is one of these collecting depots, because it prefers to call convalescents whenever the need arises and to obtain fresh serum. The clinic has on file the addresses of a large number of persons, many of them in the immediate vicinity.

The Swiss Health Office recently published statistics on the morbidity and fatality of epidemic poliomyelitis in Switzerland for the years 1931 to 1941. The detailed statistical statements showed the following results:

Year	Number of Cases	Fatalities	Percentage of Lethality
1931	351	58	16.5
1932	123	27	22.0
1933	198	28	14.1
1934	80	17	21.2
1935	245	46	18.8
1936	1,269	121	9.5
1937	1,494	177	11.8
1938	283	39	13.8
1939	521	53	10.2
1940	237	34	14.3
1941	1,479	149	10.0

Marriages

KENNETH GRAHAM LAWRENCE, Florence, S. C., to Miss Jewell Oneida Simmons in Nashville, Tenn., March 27.

THOMAS KIMBALL SLAUGHTER JR., Greenville, S. C., to Miss Mildred Marian Grout of Memphis, Tenn., April 13.

THOMAS GORSUCH REED, Lake Odessa, Mich., to Miss Geraldine Meyer of St. Petersburg, Fla., April 5.

NATHANIEL CLAYTON EWING to Miss Mary Virginia Kennedy, both of Charlottesville, Va., April 8.

JULES VICTOR JR., Savannah, Ga., to Miss Leonora Carolyn Huguenin at Beaufort, S. C., April 11.

BERNARD KYLE MUNDY, Baltimore, to Miss Marjorie Jane McKee of Chanute, Kan., March 25.

THOMAS WILLIAM TALBERT to Miss Dorothy Bramlette, both of Columbia, S. C., March 26.

ROBERT ALBERT GREER RICKETSON to Miss Alma Allen Huth, both of Durham, N. C., April 14.

LANNEAU DURANT LIDE JR., to Miss Ruth Easterling Bethea, both of Marion, S. C., March 27.

VIOLET M. CRABBE to Mr. Gerald Forbes, both of Wolcott, Ind., at Wabash, January 28.

PAUL HARDIN HARMON, Sayre, Pa., to Miss Dorothy Ann Ross in Chicago, March 20.

JOHN FLETCHER COMER to Miss Bettie Thomson, both of Birmingham, Ala., recently.

WARREN S. TUCKER to DR. MARY ALICE CRAIG, both of Indianapolis, February 21.

Deaths

James Ewing ✦ New York, famed in the field of cancer research and in 1941 recipient of the Distinguished Service Medal of the American Medical Association, died at the Memorial Hospital for the Treatment of Cancer and Allied Diseases, May 16, aged 76.

Dr. Ewing was born in Pittsburgh on Christmas Day, 1866. He received his bachelor's degree from Amherst College in 1888 and his master of arts degree in 1891, the same year in which he was awarded his degree of doctor of medicine at the College of Physicians and Surgeons of New York, now known as Columbia University College of Physicians and Surgeons. Later many honorary degrees were conferred on him.

Dr. Ewing served at Columbia from 1893 to 1897 as a tutor in histology, held the Clark Fellowship from 1896 to 1899, and taught as instructor in clinical pathology from 1897 to 1898. From the following year until 1932, when he became professor of oncology, he was professor of pathology at Cornell University Medical College.

JAMES EWING, M.D., 1866-1943

In 1931, when the January issue of *Annals of Surgery* was published to commemorate his sixty-fourth birthday, James Ewing was said to be "likewise the foremost American investigator of the entire group of neoplastic diseases." This volume was subsequently republished as a book by Lippincott under the title "Cancer." In recognition of his productive activities in the field of cancer, notable honors have been paid to Dr. Ewing: the Mickle Fellowship in 1935, the John Scott Medal in 1936, the Clement Cleveland Medal in 1940. He had been a member of numerous scientific groups, including the Philadelphia Pathological Society, the Academy of Medicine of Brazil, Swedish Roentgen Society, Academy of Medicine of Budapest, National Academy of Sciences, Association of American Physicians, American Roentgen Ray Society, American Medical Museums Society, American Association of Pathologists and Bacteriologists (president, 1906), Society of Experimental Biology and Medicine (president, 1912), New York Academy of Medicine, New York Pathological Society and the American Association for Cancer Research (president 1907, vice president 1936); advisory council to the American Society for the Control of Cancer (vice president, 1922) created in 1937 to act as a clearing house for information and to integrate and coordinate the activities of the major cancer organizations in the United States, Harvey Society (president, 1908), American Radiological Society, National Advisory Cancer Council and advisory committee to the New York state division of cancer control. He was delegate to the International Congress of Cancer in Madrid in 1933. In 1932 Dr. Ewing became medical director of Memorial Hospital for the Treatment of Cancer and Allied Diseases, in full charge of all departments and activities, where, for a number of years, he has also been director of cancer research. At various times he had delivered such notable lectures as the Frank Billings Lecture, the Beaumont Lectures, the R. W. Stewart Memorial Lecture, the Janeway Lecture and the Citizens Aid Society Memorial Address.

Dr. Ewing was chairman of the Section on Pathology and Physiology of the American Medical Association, 1916-1917, and, since 1926, had been a member of the editorial board of the *Archives of Pathology*. The citation accompanying the Distinguished Service Medal of the Association stated that the honor was "in recognition of his long and distinguished service as an investigator and teacher, his significant contributions to medical literature, and his successful inspiration of young investigators in the field of medical science." Dr. Ewing was a prolific contributor to the literature, his best known book being "Neoplastic Diseases." The volume is considered a landmark in the literature on cancer. Other notable writings include "Clinical Pathology of the Blood," published in 1900, and his "Textbook on Legal Medicine," published in 1910.

Mont Rogers Reid ✦ Cincinnati, professor of surgery in the University of Cincinnati College of Medicine, member of the Committee for the Protection of Medical Research of the American Medical Association, died at his home, May 11, aged 54, of coronary thrombosis.

Born in Oriskany, Va., April 7, 1889, Dr. Reid received his bachelor of arts degree from Roanoke College, Salem, Va., in 1908. He graduated at Johns Hopkins University School of Medicine, Baltimore, in 1912. After completing his internship, Dr. Reid filled various staff positions at Johns Hopkins Hospital and at the medical school. In 1922 he went to the University of Cincinnati Medical School as associate professor of surgery, becoming Christian R. Holmes professor in 1931. Later he was named director of the surgical service at Cincinnati General Hospital and Children's Hospital and consultant at the Hamilton County Tuberculosis Hospital.

Dr. Reid was a first lieutenant in the medical corps of the U. S. Army during World War I.

In 1934 Dr. Reid was given the first presentation of the Rudolph Matas Medal for vascular surgery for his experimental work in systemic effects of arteriovenous fistulas and his other studies on the peripheral circulation. He was a fellow of the American College of Surgeons and a member of the American Surgical Association (vice president, 1934-1935), Southern Surgical Society, International Surgical Association, Society of Clinical Surgery, American Association for the Advancement of Science, Society of University Surgeons, Central Surgical Association, National Advisory Cancer Council, director of the American Society for the Control of Cancer and a member and honorary member of numerous other societies and national fraternities.

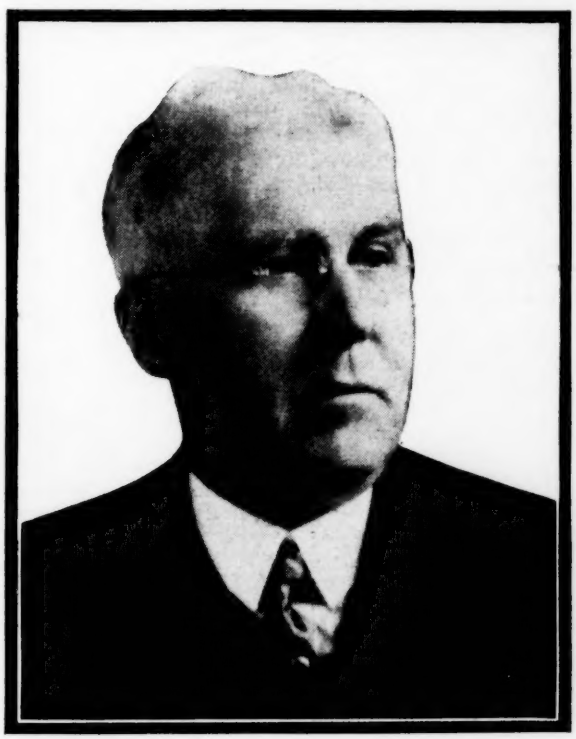
In 1926, after a year as visiting professor of surgery at the Peiping Union Medical College, Pekin, China, Dr. Reid participated in an Asiatic expedition in Mongolia conducted by Roy Chapman Andrews. He had written numerous articles in current publications and in 1929 prepared a chapter on surgery of the sympathetic nervous system in the Dean Lewis System of Surgery.

Dr. Reid was recognized as a brilliant surgeon; his achievements as a student and teacher gave him a renown for leadership in his chosen field.

Frederick Theodore Van Beuren Jr. ✦ New York; Columbia University College of Physicians and Surgeons, New York, 1902; associate clinical professor of surgery at his alma mater and formerly associate dean and secretary; specialist certified by the American Board of Surgery; member of the American Surgical Association; fellow of the American College of Surgeons; served during World War I; member of Squadron A, New York National Guard, from 1899 to 1910, when he resigned as captain; first lieutenant in the medical reserve corps of the U. S. Army from 1910 to 1918 and later a major; in 1935 elected a member of the board of directors of the Morristown (N. J.) Library; assistant attending surgeon to the Lincoln Hospital from 1910 to 1913 and the Roosevelt Hospital from 1913 to 1921; attending surgeon to the Volunteers' Hospital from 1915 to 1917 and the Sloane Hospital for Women for many years; associate visiting surgeon, Presbyterian Hospital; consulting surgeon to the Elizabeth A. Horton Memorial Hospital, Middletown; for many years president of the Morristown (N. J.) Memorial Hospital, where he died, March 13, of pneumonia, aged 67.

David Chester Brown ✠ leader in the development of the Committee on Scientific Exhibit and for many years a member of the House of Delegates and the Board of Trustees of the American Medical Association, died at his home in Danbury, Conn., May 12, aged 79, of coronary thrombosis, cerebral hemorrhage and general arteriosclerosis.

Dr. Brown was born in Norfolk, Va., Nov. 16, 1863. After graduating at Yale University School of Medicine, New Haven, Conn., in 1884, Dr. Brown pursued postgraduate work at Hartford Hospital and the Universities of Berlin and Prague, engaging in the private practice of medicine at Danbury in 1886. In 1907 he became a member of the House of Delegates of the American Medical Association, serving until 1914 and again from 1916 to 1918. He was a member of the Board of Trustees from 1918 until 1934. In 1922, after the Board of Trustees of the Association took over the Scientific Exhibit, Dr. Brown was appointed a member and chairman, a position he held until 1934. He was a fellow of the American College of Surgeons, had once been president of the Connecticut State Medical Society and the Danbury Medical Society and had also been chairman of the board of trustees and president of the Fairfield County Medical Society. He once served as coroner physician to the town of New Fairfield and surgeon to the New York, New Haven and Hartford Railroad. Associated with the Danbury Hospital since 1885, Dr. Brown had been surgeon since 1902. At one time he had been medical aide to the governor of Connecticut and chairman of the medical section of the state committee of the National Council of Defense. In 1917 he was commissioned a captain in the medical corps of the U. S. Army, becoming in 1918 a major in the medical section of the Provost Marshal General's Office. At the time of his death, Dr. Brown was chairman of the local committee on medical aid of the committee on disaster preparedness and relief of the American Red Cross.



DAVID CHESTER BROWN, M.D., 1863-1943

Long after his official connection ended with the Committee on Scientific Exhibit of the American Medical Association Dr. Brown continued an active interest in the affairs of the committee, appearing regularly at its meetings. It was during his term as chairman that the committee showed unprecedented development and to him goes credit for the bureau's participation in the expansion of medical education. His enthusiastic attention to the affairs of local and state medical matters evidenced his keen interest in the progress of organized medicine. Dr. Brown was a kindly and companionable man and his genial manner, his energy and his tact endeared him to many.

Norval Albert Hamilton ✠ Franklin, Ohio; Miami Medical College, Cincinnati, 1890; chairman of the county Selective Service Board; vice president of the Miami Valley Building and Loan Association; a director of the Franklin National Bank; past president and charter member of the Franklin Rotary Club; formerly secretary of the Warren County Medical Society; for many years a member of the Warren County Board of Elections; on the staff of the Middletown (Ohio) Hospital; past president of the U. S. Board of Pension Examining Surgeons; aged 73; died, March 28, in the Christ Hospital, Cincinnati, of chronic myocarditis.

Walter Henry Adams, Northampton, Mass.; University of the City of New York Medical Department, 1889; for many years on the staff of the Cooley Dickinson Hospital; aged 78; died, March 18, in Fresno, Calif., of arteriosclerotic heart disease.

Joel Young Alexander ✠ Middleton, Tenn.; University of Nashville Medical Department, 1907; aged 62; died, March 18, of heart disease.

Reuben Harry Alpert ✠ New Haven, Conn.; Yale University School of Medicine, New Haven, 1913; member of the American Society of Anesthetists, Inc.; anesthetist to the Griffin Hospital, Derby, and the Grace Hospital; aged 53; died, February 5, of staphylococcic meningitis.

Henry Pendleton Ball, La Jolla, Calif.; Kansas City (Mo.) Medical College, 1883; University of the City of New York Medical Department, 1884; member of the Missouri State Medical Association; formerly medical examiner for the Kansas City (Mo.) Life Insurance Company; aged 83; died, March 11, in the Scripps Memorial Hospital of cerebral hemorrhage.

William Pawson Chunn, Baltimore; University of Maryland School of Medicine, Baltimore, 1880; member of the Medical and Chirurgical Faculty of Maryland; aged 84; died, February 19.

Hale Ellicott Cullom, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1930; served as a captain in the medical corps of the U. S. Army; director of sight conservation and prevention of blindness for the state of Tennessee; son of Dr. Marvin M. Cullom; aged 39; died, April 30, in St. Thomas Hospital of pneumococcic meningitis.

Edward Dodd, Cairo, Neb.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1903; member of the board of health of Cairo; aged 64; died, March 6, of intestinal obstruction.

Francis Louis Donlon, New York; Bellevue Hospital Medical College, New York, 1892; member of the Medical Society of the State of New York; formerly chairman of the local school board; for many years consultant to St. Joseph's Hospital; visiting physician on the staff of St. Francis Hospital, where he died, March 24, of heart disease, aged 75.

Arthur I. Eccleston, Waterport, N. Y.; University of Buffalo School of Medicine, 1898; member of the Medical Society of the State of New York; served as county coroner and health officer of the town of Carlton; aged 69; died, March 22, of acute nephritis.

Harry Eckstein, Staten Island, N. Y.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1931; aged 37; died, March 21, in the Medical Center, New York, of carcinoma of the lung with right cerebral metastases.

John Harry Einhouse ✠ Moscow, Idaho; University of Louisville (Ky.) Medical Department, 1921; member of the American Academy of Dermatology and Syphilology; for many years one of the university physicians at the University of Idaho; served during World War I; formerly chief examining physician for the draft board; registrar of vital statistics for Latah County; aged 49; died, March 15, of cerebral hemorrhage.

John Headley Evans ✠ Highland, Calif.; Kansas City (Mo.) Medical College, 1900; also a dentist; for thirty-four years physician and surgeon for the San Manuel Indian reservation; for many years deputy county health officer; aged 77; died, March 14, of carcinoma of the prostate.

Ernest William Fleming ✠ Los Angeles; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885; an Affiliate Fellow of the American Medical Association; specialist certified by the American Board of Otolaryngology; member of the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; a founder member of the Los Angeles Ear, Nose and Throat Society; aged 81; died, March 7, of carcinoma of the lungs.

Fred Heywood Freeman, Gardiner, Maine; University of Vermont College of Medicine, Burlington, 1909; member of the

Maine Medical Association; served overseas during World War I; aged 64; died, March 10, in the Gardiner General Hospital of coronary thrombosis.

Hiram Brewster Gilmer, Hickory, Miss.; University of Tennessee College of Medicine, Memphis, 1924; served in the medical corps of the U. S. Army during World War I; associated with the U. S. Public Health Service for six years; aged 50; was killed, March 28, when his automobile plunged off a twelve foot embankment near Meridian.

Arthur Lee Goatcher, Plumerville, Ark.; University of Nashville (Tenn.) Medical Department, 1902; member of the Arkansas Medical Society; local surgeon for the Missouri Pacific Railroad; aged 71; died, February 25, in St. Anthony's Hospital, Morrilton, of carcinoma of the pancreas.

Robert Evans Pearis Gober, Los Gatos, Calif.; Bellevue Hospital Medical College, New York, 1884; aged 84; died, March 23, of uremia.

Thomas Henry Hack ✦ Proctor, Vt.; University of Vermont College of Medicine, Burlington, 1900; health officer of Proctor; on the staff of the Proctor Hospital; aged 72; died, March 27, of coronary thrombosis.

Marcus Philip Hambleton, Fontana, Calif.; Medical School of Maine, Portland, 1903; member of the California Medical Association; served as a captain in the medical corps of the U. S. Army during World War I; aged 63; died, March 16, in a hospital at San Bernardino of injuries received when the automobile in which he was driving was struck by a truck.

Arthur William Harold, Olin, Iowa; State University of Iowa College of Medicine, Iowa City, 1901; aged 65; died, March 27, in Iowa City of cerebral embolism.

James C. Jenkins, Hartwell, Ga.; University of Georgia Medical Department, Augusta, 1897; member of the Medical Association of Georgia; mayor of Hartwell for two terms; aged 68; died, February 1, in the Emory University (Ga.) Hospital of diabetes mellitus.

Henry Porter Johnson ✦ Fairmont, Minn.; Rush Medical College, Chicago, 1879; an Affiliate Fellow of the American Medical Association; aged 88; died, March 31, of arteriosclerosis and bronchopneumonia.

William Sidney Johnson ✦ Carbondale, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; for many years deputy coroner of Lackawanna County; on the staff of St. Joseph's Hospital; aged 67; died, March 5, of heart disease.

Thomas Frank Kennedy, Woonsocket, R. I.; College of Physicians and Surgeons, Baltimore, 1900; member of the Rhode Island Medical Society; aged 68; served on the staffs of St. Joseph's Hospital, Providence, Park Place Hospital, Pawtucket, and the Woonsocket Hospital, where he died, March 10, of pneumococcic meningitis following otitis media.

Fred William Linn ✦ Cleveland; University of Wooster Medical Department, Cleveland, 1900; on the senior staff of the Lutheran Hospital; aged 65; died, March 31, of myocardial infarction.

Homer M. Little, East St. Louis, Ill.; Marion-Sims College of Medicine, St. Louis, 1900; member of the Illinois State Medical Society; aged 72; served on the staffs of the Christian Welfare Hospital and St. Mary's Hospital, where he died, March 14, of coronary occlusion.

Carleton Mathewson, Fresno, Calif.; Cooper Medical College, San Francisco, 1900; member of the California Medical Association; served with the U. S. Public Health Service during World War I; for twenty-five years health officer of Fresno; on the staff of the Burnett Sanitarium; aged 67; died, March 1, in St. Agnes Hospital of heart disease.

Albert Bascom Price, Gordo, Ala.; Medical College of Alabama, Mobile, 1898; member of the Medical Association of the State of Alabama; past president of the Pickens County Medical Society; aged 74; died, March 3, of coronary thrombosis.

George Merwin Redman, Chicago; Chicago Medical School, 1921; member of the Illinois State Medical Society; served on the staffs of the Evangelical Hospital, St. George Hospital and the Southtown Hospital, where he died, March 27, of perforated duodenal ulcer.

Paul De Witt Robason ✦ McKinney, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1917; served overseas during World War I; past president and secretary of the Collin County Medical Society; aged 49; president of the staff of the McKinney City Hospital, where he died, March 13, of acute arthritis, bacteremia, pericarditis, myocarditis and acute nephritis.

Leo Frank Secrist, Alpena, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1911; member of the Michigan State Medical Society; past president of the Alpena County Medical Society; a member and formerly chief of the staff of the Alpena General Hospital; aged 56; was found dead, March 9, of coronary occlusion and bronchopneumonia.

Lawrence Crosby Snow ✦ Salt Lake City; Jefferson Medical College of Philadelphia, 1914; member of the American Academy of Orthopaedic Surgeons; specialist certified by the American Board of Orthopaedic Surgery, Inc.; while a resident of Park City served as city and county physician and as director of the State Bank; aged 56; on the staffs of the Holy Cross Hospital, Primary Children's Hospital and the Dr. W. H. Groves Latter-Day Saints Hospital, where he died, March 25, of hypertension and cardiac asthma.

Charles Henry Upton, Los Angeles; Bennett College of Eclectic Medicine and Surgery, Chicago, 1902; aged 67; died, March 6, of coronary thrombosis.

Frank Forrest Urey ✦ New Castle, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1900; also a pharmacist; served during World War I; chief surgeon of the ear, nose and throat department, Jameson Memorial Hospital; aged 70; died, March 8, of carcinoma of the pancreas.

Harry A. Vedder, Marshfield, Wis.; Northwestern University Medical School, Chicago, 1905; on the staff of St. Joseph's Hospital; joined the Marshfield Clinic in 1920; surgeon for the Chicago, Northwestern and Omaha Railway Company for many years; aged 63; died, March 12, of myocarditis, chronic endocarditis and cirrhosis of the liver.

Carl von Neupert ✦ Stevens Point, Wis.; Louisville (Ky.) Medical College, 1892; past president of the Portage County Medical Society; fellow of the American College of Surgeons; examining physician and surgeon for the Soo Line Railroad for more than forty years; for many years served as county physician; member of the staff and formerly president of St. Michael's Hospital; aged 72; died, March 15, of heart disease.

Solomon Le Roy Walthall, St. Louis; University of West Tennessee College of Medicine and Surgery, Memphis, 1914; aged 56; on the visiting staffs of the Peoples Hospital, Homer G. Phillips' Hospital and St. Mary's Infirmary, where he died, March 14, of cerebral hemorrhage.

Fonso Butler Watkins ✦ Morganton, N. C.; Jefferson Medical College of Philadelphia, 1907; fellow of the American College of Physicians; president of the North Carolina Neuropsychiatric Association; in 1938 became superintendent of the State Hospital, after having served for twenty-six years as first assistant physician; aged 64; died, March 8, in the Rutherford Hospital, Rutherfordton, of toxic cirrhosis of the liver.

Annie Roberts Young, Waltham, Mass.; Tufts College Medical School, Boston, 1911; at one time a member of the school committee of Waltham; aged 79; died, March 16, in Wellesley of myocarditis and arteriosclerosis.

DIED WHILE IN MILITARY SERVICE

Louis Archie Milne ✦ Colonel, M. C., U. S. Army, Brooklyn; Kansas City (Mo.) Medical College, 1904; U. S. Army Medical School, Washington, D. C., 1935; practiced at Lawton, Okla., where he had been a contract surgeon for the Indian Reservation; in 1916 served as a medical officer on the Mexican border; served during World War I; became a captain in the medical corps of the U. S. Army in 1920 and rose through the various ranks to that of colonel; port surgeon of the New York Port of Embarkation; aged 63; died, March 6, in the Fort Hamilton Station Hospital of cerebral embolism.

Howard Hopley Barlow, Salem, Ore.; State University of Iowa College of Medicine, Iowa City, 1920; a member of the staffs of the Salem General and Salem Deaconess hospitals; captain, medical corps, Army of the United States; aged 47; died, April 8, in the Barnes General Hospital, Vancouver, Wash., of coronary thrombosis.

William Thau, Boston; Deutsche Universität Medizinische Fakultät, Prague, Czechoslovakia, 1924; captain in the medical corps of the Army of the United States, assigned to the Station Hospital at the Indiantown Gap Military Reservation in Pennsylvania, where he died, February 14, of a skull fracture received in an automobile accident, aged 45.

Correspondence

"BLACK DERMOGRAPHISM"

To the Editor:—With reference to the article "The Phenomenon of 'Black Dermographism'" by Urbach and Pillsbury in THE JOURNAL, February 13, any one sufficiently interested in the subject to attempt to analyze the data presented may find them rather confusing. Data of this sort should, if accurate and properly presented, contribute to an ultimate solution of the phenomenon on theoretical grounds. I should like to suggest in passing, however, that the explanation is to be found in an analytic study of the reactions and deposit on the skin rather than through a study of the materials which may or may not "prepare" the skin for the test.

As to my criticism of the clarity of the article, particular reference is made to the second paragraph on page 487, which is quoted here for reference: "Table 6 shows how differently the various salts of the same metal used in preparation of the skin react, even such closely related compounds as sodium sulfate and sodium sulfite, for example. We would stress that, with the exception of sodium sulfite, all sulfur compounds react negatively and that therefore the suggestion that black dermographism might be due to a sulfur compound (e. g. silver sulfide) may be promptly dismissed." The reference is obviously to table 7 rather than to table 6, whereas an earlier reference (p. 486) to "table 7" is obviously meant for table 6. To repeat, "We would stress that, with the exception of sodium sulfite, all sulfur compounds react negatively. . . ." This "exception," namely sodium sulfite, is, however, listed in table 5 as one actually giving a negative result. In table 7, on the other hand, this compound, as well as seven other sulfur-containing compounds, is credited with producing positive reaction, while only two (aluminum sulfate and sodium sulfate) are given as negative. The positive reactions of the seven compounds just mentioned are confirmed in table 4, while table 5 fails to add any to the list of two negatively reacting substances (with the exception of sodium sulfite).

These data hardly seem to support the authors' ready dismissal of "the suggestion that black dermographism might be due to a sulfur compound."

L. F. NEY, Edgewood Arsenal, Md.

[A copy of Mr. Ney's comment, sent to the author of the article, brought this reply:]

To the Editor:—Dr. Pillsbury and I fully agree that the ultimate solution of the phenomenon of black dermographism is to be found in the analytic study of the deposits. To this end photospectrometric examinations were presented showing that the black lines consisted of silver or copper, depending on the composition of the metal used for the experiment (see figs. 4 and 5). This closely corresponds with the chemical analysis by Hauck and Dietel, cited in the paper.

As regards the role of sulfur in the elicitation of this phenomenon, two points are significant: 1. Many substances entirely free of sulfur, such as titanium dioxide and calcium carbonate, call forth positive reactions. 2. While certain sulfur compounds react positively, others, including aluminum sulfate and sodium sulfite, as well as precipitated, sublimed and washed sulfur, react negatively. It seems proper to conclude, therefore, that black dermographism is definitely not based on a chemical reaction between sulfur or sulfur compounds and the metals used for stroking.

It is a regrettable error that sodium sulfite was included as a negative reacting substance in table 5.

ERICH URBACH, M.D., Philadelphia.

NUTRITION PLANNING

To the Editor:—The coming International Food Conference at Hot Springs is expected, among other things, to see that sufficient and proper food will be available during the present war and the postwar period. The conference will also make far reaching recommendations and will probably advise the various countries as to the quantity and type of foodstuff they are expected to produce. The predominantly grain producing countries will have to produce according to some plan in order to avoid overproduction of certain foodstuffs. Cattle and sheep raising countries will likewise produce according to the protein requirements of the populations concerned. In making these recommendations the conference will undoubtedly be guided by fundamental human nutritional needs as determined by medical science.

In general, the mineral requirements of the human being are well established, as also the requirements of the known vitamins. The protein, fat and carbohydrate requirements should be definitely established. This will be a difficult problem and will lead to controversy because there will be disagreement as to the requirements of protein, fat and carbohydrate.

In recent years several common diseases and disorders have been successfully treated with diets high in protein and low in carbohydrate rich foods. I refer to such diseases and disorders as arthritis, peptic ulcer, colitis, angina pectoris, tuberculosis, dyspepsia, flatulence, abdominal pain, certain neurotic states and ordinary headaches. The results have been so striking as to force the conclusion that the fundamental cause of these pathologic states is due, in the main, to the consumption of carbohydrate rich foods. Having had a considerable experience in treating patients with these diseases and disorders during the past five years, I have been forced to conclude that the American diet is harmful because it allows a great amount of carbohydrate rich foods. It has also become apparent that, even though the diet may contain a sufficient amount of protein, fat, minerals and vitamins, the presence of carbohydrate rich foods will exert their harmful effects just the same. This was clearly demonstrated in the treatment of advanced pulmonary tuberculosis. Patients who were going downhill on a scientifically prepared hospital diet containing carbohydrate rich foods and required amounts of protein, fat, minerals and vitamins responded immediately to a diet which eliminated all carbohydrate rich foods. From such observations on patients with tuberculosis one may justifiably conclude that the consumption of carbohydrate rich foods is, perhaps, the most important factor in susceptibility to tuberculosis. Faber of Denmark, in a study of tuberculosis mortality in Europe during World War I, found that the increase in tuberculosis mortality in all countries investigated coincided with an increased consumption of flour and potatoes and a decreased consumption of meat, fish and dairy products. The increase in mortality occurred in spite of an adequate caloric intake. When conditions permitted an increased consumption of protein and fat and a decreased consumption of carbohydrate rich foods, the tuberculosis mortality fell.

That "good nutrition" is essential to the maintenance of health is recognized by all. "Good nutrition" is a vague term; it means not only sufficient calories and food of adequate quality and quantity but also a greater amount of protein and fat and far less carbohydrate rich foods than present day standards permit. I would recommend that the consumption of carbohydrate rich foods by human beings be ultimately discontinued. Carbohydrate should be ingested only in the form of 5 and 10 per cent vegetables and fruits.

BENJAMIN P. SANDLER,
Lieutenant Commander (MC), U.S.N.R.,
Medical Department, U. S. Naval Air Station,
Quonset Point, R. I.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, May 15, page 195.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*, August 2-4. *Part III*, June and also at different times at various centers having 5 or more eligible applicants. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written*. Philadelphia, Sept. 27. *Oral*. Philadelphia, Nov. 5-6. Final date for filing application is August 16. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral*. Philadelphia, May 26-29 and Chicago, June 9-11. *Written*. Oct. 18. Final date for filing application is Sept. 1. Asst. Sec., Dr. William A. Werrell, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OPHTHALMOLOGY: *Parts I and II*. New York City, June 4-5, Chicago, October 8-9. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral*. Chicago, October. Final date for filing application is July 1. Sec., Dr. Dean M. Lierle, 1500 Medical Arts Bldg., Omaha, Neb.

AMERICAN BOARD OF PEDIATRICS: *Written*. Locally, Oct. 8. *Oral*. New York, Nov. 20-21. Final date for filing applications is Aug. 1. Starting July 1, 1943, Group I will be abolished. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF UROLOGY: *Oral*. Chicago, February. *Written*. Various centers, December. Final date for filing application is Nov. 1. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis, Minn.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Performance of Unnecessary Operation by Osteopath.—The plaintiff, a man aged 22, consulted the defendant, an osteopath, relative to dark circles under his eyes and was advised that an operation, which the osteopath agreed to perform for $100 cash in advance, would correct the condition. The patient returned the next day, paid the osteopath $100 cash and signed a paper presented to him by the osteopath, reading as follows:

To Whom It Concerns:

This will certify that I have requested . . . [naming the osteopath] to perform plastic surgery upon my person & assume full responsibility for any untoward happening, infection, scarring, occurrence or recurrence of a deformity that may develop.

The patient objected to signing such a paper, stating that if there was any danger at all in the operation he (the patient) did not want to go through with it, but the osteopath assured him that the osteopath's insurance carrier required the signing of such a paper and that, in the words of the patient, "he could do me a neat and satisfactory job, the kind I really would like to have and he could do it." The following day the osteopath operated on the patient, removing "the pigmented skin under the eyes in an effort to eliminate the dark circles." The operation, according to the Supreme Court of Missouri, division No. 1, admittedly "was unnecessary and not successful." Twenty-eight days later the osteopath for another $50 cash in hand paid, performed a second operation "by removing skin at the side of the eye in an attempt to remedy a dropping of the lower lid from the eyes." The patient subsequently sued the osteopath for malpractice and recovered a judgment for $12,000. The osteopath appealed to the Supreme Court of Missouri, division No. 1.

The trial court had instructed the jury that if it found that the dark areas or circles under the patient's eyes were not caused by any ailment or disease and that an operation for the removal thereof would be likely to result in injury to the patient, and that the osteopath knew or by the exercise of ordinary care and skill could and should have known that the removal of such dark areas by an operation was so obviously unnecessary that an ordinary careful and prudent surgeon would not have performed it, and that such operation was likely to result in injury to the patient and notwithstanding such knowledge, if any, advised such operation and performed it, and that as a direct result of the operation by the defendant the plaintiff was injured, then the verdict of the jury should be for the patient and against the osteopath. The osteopath contended that the instruction was erroneous because there was no evidence tending to show that the operation was likely in all probability to result in injury. The fact, said the Supreme Court, that the osteopath asked his patient to sign the release tended to show that the osteopath had doubts about the result of the operation and thought it likely to result in injury. Furthermore, there was evidence tending to show that the skin under the eyes of "youngsters" from 20 to 25 years of age fits tightly to other tissues, that the "natural and probable consequences" of the operation would be a contracted lid and that the skin under the patient's eyes had been normal. All of this, concluded the court, was substantial evidence tending to show that the operation would likely result in injury.

The osteopath further objected to the instruction, arguing that the jury might have understood the word "injury" used in the instruction to mean the mere cutting of the skin. We do not think that there is any merit to this argument, answered the court. As the word "injury" was used in the instruction the jury would understand the word to mean the ultimate result of the operation. The osteopath also contended that the use of the word "likely" in the instruction broadened the issues. The instruction, said the court, requires a finding that the operation would likely result in injury, whereas the petition filed by the patient alleged that the osteopath knew or, by the exercise of ordinary care, should have known that the operation would result in injury. If the osteopath knew that the operation would result in injury, continued the court, it necessarily follows that he knew it would likely result in injury. In other words, an allegation that the osteopath knew that the operation would result in injury includes an allegation that he knew it would likely result in injury. If so, the instruction does not broaden the issues made by the pleadings. On the contrary, it narrows such issues. Furthermore, the evidence shows that the case was tried on the theory that the operation would likely in all probability result in injury and not on the theory that the defendant had actual knowledge that injury would result from the operation. Thus it appears that the osteopath is not in a position to complain of the word "likely" in the instruction.

The osteopath next contended that the patient tried the case on the theory that the pigmentation of the skin was due to disease and for that reason it was error to require the jury to find that that condition was not due to disease. The osteopath relied on the testimony of a physician called by the patient to sustain his contention. That physician testified that the dark circles under the eyes of the patient were not the result of disease; that the operation should not have been performed; that the proper treatment was medical in that the boy's life should have been regulated and attention given to nutrition. It thus appears, answered the Supreme Court, that this physician's testimony does not sustain the osteopath's contention. Furthermore, the record shows that the pigmentation of the skin under the eyes was a mere discoloration which was not the result of disease. The only evidence even remotely bearing on this contention was the testimony of the osteopath to the effect that the condition was a local disorder.

The osteopath also contended that the instruction erroneously directed a verdict for the patient without a finding that it was negligence on the part of the osteopath to perform the operation. But, answered the court, as was said in *Jones* v. *Central States Oil Co.*, 164 S. W. (2d) 914, 919:

If an instruction requires the jury to find facts which, if true, could only mean that the defendant was guilty of negligence per se or as a matter of law, then the instruction is good even if it does not require the jury to find that such facts constitute negligence, because "the law draws the conclusion in such cases."

If the osteopath knew that the operation was unnecessary and likely to result in injury, he would be guilty of negligence as a matter of law if he advised the operation and performed it. On this, reasonable minds cannot differ. Furthermore, if the osteopath was without actual knowledge as to the result of

the operation and if, by the exercise of ordinary care, he should have known that the operation was unnecessary and likely to result in injury, he also would be guilty of negligence as a matter of law if he advised the operation and performed it. On this also reasonable minds cannot differ.

The judgment in favor of the patient against the osteopath was accordingly affirmed.—*Waters v. Crites, 166 S. W. (2d) 496 (Mo., 1942).*

Malpractice: Broken Surgical Needles and Res Ipsa Loquitur.—The patient, then a boy of 7, on Aug. 21, 1939 stepped on a broken glass jar and sustained a deep cut in his foot, severing the largest artery in the foot. The physician who then attended him stopped the flow of blood by clamps. Two days later a severe hemorrhage from the wound occurred. According to medical testimony, the wound was infected and hemorrhage was due to infection which dissolved the blood clot. The child was removed to a hospital where the defendant physician operated to repair the severed artery. The operation was very difficult "because the bones of the foot were so close." Because of this situation, two sterilized surgical needles were broken in the wound. The physician probed for the needles but before they could be located and removed the child "went bad" and it was necessary to stop the operation and help the anesthetist resuscitate him. The boy vomited profusely and turned blue, and his pulse was irregular. Medical testimony was unanimous that under the circumstances it was imperative that the child be resuscitated and that the operation be stopped and that it would have been a "dangerous course" for the physician to continue to probe for the needles. Accordingly the child was removed from the operating table with the broken needles still in the wound. The needles worked to the surface during the following October and December, respectively, and were pulled out by the boy's mother. Subsequently the child, by its next friend, brought suit against the defendant physician for malpractice, alleging that the physician had been negligent in allowing the broken needles to remain in the operation wound, "thereby causing the child to be injured and his foot to become infected, resulting in pain and suffering." The trial court directed a verdict for the physician and the plaintiff appealed to the Court of Appeals of Kentucky.

We are limited in this appeal, said the Court of Appeals, to a consideration of the question as to whether or not there was any evidence to show that the act of the physician in permitting the broken needles to remain in the wound was the cause of infection and of subsequent pain and suffering endured by the patient. If there was any such evidence, the trial court erred in directing a verdict for the physician. Counsel for the patient contended that the factual situation proved at the trial called for the application of the doctrine of res ipsa loquitur, citing *Samuels* v. *Willis*, 133 Ky. 459, 118 S. W. 339 and *Barnett's Adm'r* v. *Brand*, 165 Ky. 616, 177 S. W. 461, in both of which cases surgical sponges were left sewn up in the abdomen of the patient. Those cases, said the court, have no application here, since it is within the common knowledge of the ordinary layman that the leaving of a surgical sponge in the abdomen, in the absence of an explanation showing imperative reasons for so doing, is negligence. However, it should be noted that in the Brand case the court said, in effect, that if delay in exploring for the sponge would endanger the patient's safety the operating physician was not negligent in leaving the pad or sponge in the abdomen. The patient's counsel also cited *Sellers* v. *Noah*, 209 Ala. 103, 95 So. 167, in which a portion of a surgeon's needle was left in the patient's body, and *Ernen* v. *Crofwell*, 272 Mass. 172, 172 N. E. 73, in which a portion of a hypodermic needle was left in the jaw of a patient by a dentist. In both of those cases, said the court, it was held that the burden of proof passed to the defendant to show that the presence of the needle was not due to negligence. In both cases there was evidence that the patient's pain and suffering resulted from the needles being left in the wound and since both of these issues of fact were contested in evidence it was held that a case was made for the jury. Here, however, there was no evidence that leaving the needles in the wound had caused an infection that had resulted in pain and suffering. As a matter of fact, only one witness who could give testimony even remotely approaching medical testimony was called by the patient. An osteopathic witness was called, who, in the opinion of the court, furnished no testimony of any material bearing. The effect of his testimony was that it is possible for sterilized needles to become infected while being used and thus cause infection in a wound. From this testimony, however, it is clear that if this happened infection could be spread whether or not the needles were broken and remained in the wound.

The rule in Kentucky, continued the court, was stated in *Stacy* v. *Williams*, 253 Ky. 353, 69 S. W. (2d) 704, as follows:

> The presumption of negligence is never indulged in from the mere evidence of mental pain and suffering of the patient, or from failure to cure, or poor or bad results, or because of the appearance of infection. The burden of proof is upon the patient to prove the negligence of the physician or surgeon, and that such negligence was the proximate cause of his injury and damages. . . . The doctrine of res ipsa loquitur has no application in such cases. . . . The presence of infection following an operation is neither prima facie evidence of, nor per se, negligence.

In the light of this rule, continued the court, we conclude that the trial court properly directed a verdict for the physician. There was a complete absence of competent testimony to establish that the patient endured any additional pain and suffering by reason of the broken needles being left in the wound. The child had had a serious operation on a badly infected foot, and it is beyond question that he was bound to undergo a considerable period of pain and suffering, no matter how carefully and skilfully the operation was performed. There was no medical evidence as to any added pain or additional injury caused by the needles, and proof on such issues must be established by expert testimony. Further, all medical evidence is to the effect that it would have been bad surgical practice for the operating physician to have probed for the broken needles on account of the danger of spreading infection even had it not been necessary for him to suspend his search for the needles when his patient "went bad" during the operation. This fact must be taken as conclusively established in the absence of medical testimony to the contrary, since, on this point, only expert witnesses can testify. To prove negligence in an action of this character, the plaintiff must show that the surgeon's practice did not accord with the standard of members of his profession in the community. This was not done. On the contrary, all competent testimony was to the effect that skilful physicians all adopted the same procedure as that adopted by the operating physician in the circumstances proved. The patient merely proved that the physician permitted the needles to remain in the wound but did not prove by any competent evidence that this was negligently done or that any damage or injury resulted from such action.

For the reasons stated, the judgment in favor of the physician was affirmed.—*Steinmetz v. Humphrey, 160 S. W. (2d) 6 (Ky., 1942).*

Society Proceedings

COMING MEETINGS

HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION, CHICAGO, BEGINNING JUNE 7. DR. OLIN WEST, 535 NORTH DEARBORN ST., CHICAGO, SECRETARY.

American Association of Genito-Urinary Surgeons, Stockbridge, Mass., June 10-12. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Rochester, N. Y., May 25-27. Dr. E. C. Holmblad, 28 East Jackson Blvd., Chicago, Managing Director.

American College of Radiology, Chicago, June 6. Mr. Mac F. Cahal, 540 North Michigan Blvd., Chicago, Executive Secretary.

American Ophthalmological Society, Hot Springs, Va., June 10-12. Dr. Walter S. Atkinson, 129 Clinton St., Watertown, N. Y., Secretary.

American Society of Clinical Pathologists, Chicago, June 4-6. Dr. Alfred S. Giordano, 531 North Main St., South Bend, Ind., Secretary.

Connecticut State Medical Society, New Haven, May 25-27. Dr. Creighton Barker, 258 Church Street, New Haven, Secretary.

Massachusetts Medical Society, Boston, May 24-26. Dr. Michael A. Tighe, 8 Fenway, Boston, Secretary.

Montana, Medical Association of, Billings, July 7-8. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.

New Jersey, Medical Society of, Newark, May 25-26. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

Rhode Island Medical Society, Providence, June 2-3. Dr. William P. Buffum, 122 Waterman St., Providence, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

12:221-252 (Feb.) 1943

Peptic Ulcer. M. S. Davie, Dothan.—p. 221.
Gallbladder Disease in Children: Short Review of Literature with Case Report. J. L. Carmichael, Birmingham.—p. 225.
Delivering Babies at Home. J. E. Garrison, Birmingham.—p. 228.
Cardiac Neurosis. R. O. Russell, Birmingham.—p. 231.

American Journal of Pathology, Ann Arbor, Mich.

19:1-194 (Jan.) 1943

Changes in Accessory Sex Organs of Male Rat After Administration of Estradiol in Combination with Progesterone or Desoxycorticosterone Acetate. G. Masson and H. Selye, Montreal, Canada.—p. 1.
Production of Cirrhosis in Liver of Normal Dog by Prolonged Feeding of High Fat Diet. I. L. Chaikoff, Berkeley, Calif.; K. B. Eichorn, San Francisco; C. L. Connor and C. Entenman.—p. 9.
Pathology of Staphylococcic Pneumonia Complicating Clinical Influenza. O. J. Wollenman Jr. and M. Finland, Boston.—p. 23.
*Chronic Gastritis: Its Relation to Gastric and Duodenal Ulcer and to Gastric Carcinoma. R. Hebbel, Minneapolis.—p. 43.
Lymph Nodes in Disseminated Lupus Erythematosus. R. A. Fox, New Haven, Conn., and P. D. Rosahn, New Britain, Conn.—p. 73.
Mediastinal Sympathogonioma. S. Sailer, Cincinnati.—p. 101.
Medial Hypertrophy of Renal Arterioles in Pregnancy. I. Graef, New York.—p. 121.
Pathologic Changes Produced in Rabbits by Toxic Somatic Antigen Derived from Eberthella Typhosa. H. R. Morgan, Boston.—p. 135.
Experimental Necrotizing Arteritis in Dogs: III. Bilateral Nephrectomy as Effective as Heavy Metal Injury in Its Production. R. L. Holman, Chapel Hill, N. C.—p. 147.
Id.: IV. Alteration of Blood Plasma Proteins Not Essential. R. L. Holman, Chapel Hill, N. C.—p. 159.
Studies on Experimental Rickets in Rats: IV. Relation of Rickets to Growth, with Special Reference to Bones. G. S. Dodds and Hazel C. Cameron, Morgantown, W. Va.—p. 169.
Fatal Disease of Middle Aged Mice Characterized by Myocarditis Associated with Hemorrhage in Pleural Cavity. D. M. Angevine and J. Furth, New York.—p. 187.

Chronic Gastritis.—In a relatively large number of stomachs resected because of ulcer or carcinoma but also presenting features of chronic gastritis, Hebbel tried to verify the character and distribution of the reported mucosal changes in relation to ulcer and carcinoma. The stomachs from patients who died without manifest gastric disease were also examined. The changes exhibited by this group were chiefly those of a pangastritis leading to atrophy. The process bore no demonstrable relationship to any factor other than age. Atrophic gastritis was exhibited by 30 per cent of the stomachs of 108 patients more than 50. This form of gastritis is unimportant in patients less than 50 whose stomachs are resected. Among the 106 stomachs resected for ulcer there was an antral gastritis in the 98 in which the antrum was examined. Changes in the body mucosa were rare in the stomachs with duodenal ulcer and common in those with gastric ulcer. The evidence substantiates the contention that an antral gastritis (and duodenitis) precedes, and is the anatomic basis for, the development of chronic ulcer. The gastric changes in 52 stomachs resected for carcinoma were variable. Although in many a diffuse atrophic gastritis undoubtedly antedated the tumors, the condition did not obtain in all. In a few the mucosa of the body was normal or nearly normal. In others, although there were severe changes near the tumor, the more distant portions of the excised segments were less, or not at all, affected. This suggested that the mucosal changes were secondary to the tumor, although the possibility of a coincidental association could not be excluded. The series did not indicate that carcinomas frequently arise in stomachs in which diffuse atrophic gastritis is already present.

American Journal of Psychiatry, New York

99:159-316 (Sept.) 1942

Morale. E. A. Strecker and K. E. Appel, Philadelphia.—p. 159.
Analysis of Certain Factors in Histories of 200 Soldiers Discharged from the Army for Neuropsychiatric Disabilities. S. J. Rosenberg and R. H. Lambert, Camp Lee, Va.—p. 164.
Self-Inflicted Injury: Case Report. D. J. Flicker, Camp Blanding, Fla.—p. 168.
Brain Injury, Drugs and Environment as Causes of Mental Decay in Epilepsy. W. G. Lennox, Boston.—p. 174.
Some Administrative Aspects of Suicide in Mental Hospital. L. S. Lipschutz, Eloise, Mich.—p. 181.
Manic Depressive Psychoses Among College Students. L. E. Himler and T. Raphael, Ann Arbor, Mich.—p. 188.
History of First Psychopathic Institution on the American Continent. S. R. Moreno, Mexico, D. F., Mexico.—p. 194.
The Other Side of a Fit. T. Fay, Philadelphia.—p. 196.
Further Follow-Up Results in Insulin Shock Therapy. E. D. Bond and T. D. Rivers, Philadelphia.—p. 201.
Unusual Case of Prolonged Coma in Hypoglycemic Shock Treatment. L. D. Proctor and N. L. Easton, Toronto, Canada.—p. 203.
Comparative Study of Electroencephalograms of Schizophrenic and Manic Depressive Patients. Pauline A. Davis, Cambridge, Mass.—p. 210.
Unidirectional Electrostimulated Convulsive Therapy: I. Effect of Wave Form and Stimulus Characteristics on Convulsive Dose. E. Friedman, Norwich, Conn.—p. 218.
Unit Reaction States in Oculogyric Crises. A. A. Rosner, New York.—p. 224.
Tuberculosis in Drug Addicts. M. A. Diamond, Fort Worth, Texas.—p. 229.
Evaluation of Continued Therapy with Phenytoin Sodium. L. J. Robinson, Palmer, Mass.—p. 231.
Debatable Administrative Features. J. L. Van de Mark, Rochester, N. Y.—p. 238.
Hospital Treatment of Patients with Psychoneurotic Disorders. D. M. Hamilton, H. I. Varney and J. H. Wall, White Plains, N. Y.—p. 243.
Psychiatric Aspects of Marihuana Intoxication. S. Allentuck and K. M. Bowman, New York.—p. 248.
Some Dynamic Aspects of Alcoholic Psychoses. W. J. Turner, Northport, N. Y.—p. 252.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

49:1-144 (Jan.) 1943

Role of the Gynecologist in the Field of Cancer: Janeway Lecture, 1942. W. P. Healy, New York.—p. 1.
Dust Hazard in Tremolite Talc Mining, Including Roentgenologic Findings in Talc Workers. W. Siegal, Adelaide Ross Smith and L. Greenburg, New York.—p. 11.
*Virus Pneumonia: Roentgenographic Characterization of Recent Virus Pneumonitis with Bronchopneumonia. A. E. Seeds and M. L. Mazer, Dallas, Texas.—p. 30.
*Duodenal Ulcer Syndrome Caused by Ancylostomiasis: Report of 25 Cases with Gastric Acidity and Roentgenologic Studies. H. A. Yenikomshian and W. H. Shehadi, Beirut, Lebanon, Syria.—p. 39.
Development, Clinical Manifestations and Treatment of Rheumatoid Arthritis of Apophysial Intervertebral Joints. A. Oppenheimer, Beirut, Lebanon, Syria.—p. 49.
Chondrodystrophia Calcificans Congenita. G. Raap, Miami, Fla.—p. 77.
Prevention of Irradiation Sickness: Use of Vitamin B_1 in Roentgen Therapy. W. H. Whitmore, Norfolk, Va.—p. 83.
Classification of Epithelial Cancer Based on Site of Origin. E. A. Merritt and R. M. Caulk, Washington, D. C.—p. 99.
Effect of Roentgen Irradiation on Epiphysial Growth: 1. Experimental Studies on Albino Rat. J. S. Barr, J. R. Lingley and E. A. Gall, Boston.—p. 104.

Virus Pneumonia.—In a group of 221 cases of nonlobar (non-pneumococcic) pneumonia, the clinical and laboratory observations of which correlate well with previously described groups of febrile episodes apparently due at least in part to infection with a filtrable virus, Seeds and Mazer were able to demonstrate certain pulmonary roentgen characteristics over and above "distribution unusual to lobar pneumonia" and inconstancy within its own group. They have found the following roentgen characteristics: 1. There was an infiltrative process which at the onset was (*a*) first progressively peribronchial from the hilus and then irregularly interbronchial and (*b*) customarily clearly definable as to limits in spite of its disregard for segmental or lobar structural limits, usually involving more than one segment and frequently parts of more than one lobe. 2. This was quickly accompanied by a "cottonwool" appearance of multiple areas of partial or semi consolidation, which was scattered through the area of infiltration and usually also distributed in a radial progression, frequently coalesced subsequently (six to twenty-four hours) and occasionally filled eventually (twenty-four to forty-eight hours) approximately a whole lobe to simulate lobar pneumonia but with a striated infiltrative type of background rather than a pure homogenicity, and a fixed distribution for any one area was established in two to three days.

This later behaves as a "unit." 3. Resolution or absorption begins by (*a*) generalized and uniform progressive (three to five days) loss of density throughout the "unit," (*b*) the appearance of "wire grass" infiltration or "pseudofibrosis" and (*c*) eventual progressive complete clearing of single units in five to fourteen days. 4. There was occasional development of multiple "units" with (*a*) subsequent definite dates of onset and individual chronology, (*b*) rare involvement of all visible parts of a lung and (*c*) usually no one unit disturbed the approximate prearranged chronology of any forestarted unit. 5. Its occurrence in children is typical.

Duodenal Ulcer Syndrome Caused by Ancylostomiasis.—In localities in which ancylostomiasis is common, dyspepsia associated with severe anemia suggests the diagnosis of hookworm disease, but in countries in which this disease is infrequent ancylostomiasis as a cause of painful dyspepsia is often ignored and not considered in the differential diagnosis. When hookworm disease causes symptoms suggestive of duodenal ulcer a definite diagnosis can be made only by finding the ova of Ancylostoma in the stools and by roentgen study of the gastrointestinal tract. Yenikomshian and Shehadi have had patients whose clinical history was suggestive of chronic duodenal ulcer but whose stools contained the ova of Ancylostoma duodenale and who were relieved completely of their digestive symptoms soon after the infection was cleared up. The fact that some of these patients gave no history of recent hematemesis or malaria and had severe microcytic anemia prompted the authors to investigate the gastric acidity and to make roentgen studies of the gastrointestinal tract of patients with ancylostomiasis. The estimation of free gastric acidity showed a rise to a higher level than that obtained in duodenal ulcer. In spite of the varying degrees of anemia, this high gastric acidity was maintained. Roentgen studies of these cases show evidence of swelling of the duodenal mucosa, inconstant deformity of the duodenal bulb (duodenitis without an ulcer niche), hyperperistalsis of the stomach and the duodenum and, commonly, reverse peristalsis of the duodenum without obstruction. The administration of a vermifuge resulted in the elimination of epigastric pain within twenty-four hours and the restoration of the duodenal wall to normal within eleven to twenty-four days.

American Journal of Surgery, New York

59:159-458 (Feb.) 1943. **Partial Index**

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*Postoperative Parotitis with Radiation Treatment. D. C. Patterson, Bridgeport, Conn.—p. 172.
Peripheral Circulation in Relation to Trauma, with Special Reference to Thrombosis and Embolism. A. W. Allen, Boston.—p. 177.
Fractures of Metacarpals Exclusive of the Thumb: New Method of Treatment. R. L. Waugh and G. P. Ferrazzano, Boston.—p. 186.
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*Frostbite in Shipwrecked Mariners. G. M. Brownrigg, St. John's, Newfoundland.—p. 232.
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Roentgenologic Manifestations of Bone Repair: Healing of Fractures Without External Callus. R. G. Vance and G. M. Wyatt, Boston.—p. 404.
Plea for Careful Examination and Early Evaluation of Traumatic Cases. E. P. Palmer, Phoenix, Ariz.—p. 450.

Radiation Therapy of Postoperative Parotitis.—Postoperative parotitis is a serious complication. In contrast to simple parotitis or mumps it has a short incubation period, it tends to suppurate and its mortality rate is high. Many forms of therapy have been advocated. Between May 1940 and August 1941 Patterson encountered 5 instances of postoperative parotitis in his service; he treated them by radiation therapy with recovery in all. Aside from irradiation, which was begun early, only local treatment was employed; this probably explains why suppuration was imminent only in some glands. As a prophylactic measure no elective surgery should be done when foci of infection are present in the nose, mouth or throat. Debilitated and dehydrated patients should receive proper preoperative treatment.

Frostbite in Shipwrecked Mariners.—The 71 cases of frostbite incurred in the battle of the Atlantic were treated by Brownrigg according to whether the frostbite was principally characterized by erythema, 55 cases; a dusky red to black color of the affected part with restricted movement, 7 cases, or the foregoing changes with toxicity and fever, 9 cases. In first degree frostbite rest, elevation and strict attention to asepsis resulted in a rapid complete or nearly complete amelioration of the condition. In a few considerable disability persisted because of persisting thickening and stiffness of the toes, feet and, in 1 case, of the hands. This was due to the formation of fibrous tissue. Anything (refrigeration, vasoconstrictor drugs) that will minimize this may be of considerable value. In the treatment of second degree frostbite the ideal treatment is to allow spontaneous separation of the areas of dry gangrene, to trim necrotic bone and to permit healing by granulation. This preserves maximal function. In third degree frostbite amputation must be performed sufficiently high to remove all areas of gangrene. The prevention of frostbite in shipwrecked mariners is difficult, but clothing which would prevent heat loss and be waterproof for at least the lower extremities would be a great advancement. Soft sealskin boots might be of considerable value.

Annals of Internal Medicine, Lancaster, Pa.

18:145-270 (Feb.) 1943

Newer Knowledge of Epilepsy. W. G. Lennox, Boston.—p. 145.
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*Recognition of Incipient Thromboangiitis Obliterans in Young Draftees. W. E. Jahsman and R. H. Durham, technical assistance of N. P. Dallis, Detroit.—p. 164.
Approximate Insulin Content of Extemporaneous Mixtures of Insulin and Protamine Zinc Insulin. F. B. Peck, Indianapolis.—p. 177.
Effectiveness of Replacement Therapy in Achlorhydria. A. E. Koehler and E. Windsor, Santa Barbara, Calif.—p. 182.
Method for Continuous Recording of Gastric *p*H in Situ: IV. Further Evaluation of Efficacy of Antacids in Vitro and in Human Being. N. E. Rossett and J. Flexner, New York.—p. 193.
*Sulfonamide Therapy of Bacterial Endocarditis: Results in 42 Cases. W. R. Galbreath and E. Hull, New Orleans.—p. 201.
Clinical Evaluation of Cedilanid. M. Sokolow and F. L. Chamberlain, San Francisco.—p. 204.
Pancreatic Tissue Extract (Insulin Free) in Treatment of Peripheral Vascular Disease. C. Klein, G. Saland and H. Zurrow, Bronx, N. Y.—p. 214.

Incipient Thromboangiitis Obliterans in Young Draftees.—Physicians examining young men of the draft age who describe symptoms of peripheral vascular disease, Jahsman and Durham caution, should remember that thromboangiitis obliterans can and does occur in young men and make every effort to rule this disease in or out, as it may constitute a definite compensation risk. When draft boards refer men for special investigation because of a suspicion of peripheral vascular disease, the routine examination should include capillaroscopy and the response of the cutaneous temperature to heat and cold. During the last seven months the authors have encountered 7 such cases; 3 were in draftees referred for study and 1 in a youth of 19 in the Michigan National Guard. One foot and leg were invariably more involved than the other. There may be symptoms in a single digit. At least some involvement of the larger arteries was demonstrated in the slight to moderate organic occlusion revealed by the dermatherm study in each of the 4 young men; none showed complete occlusion. Once the disease is diagnosed in young men they should be kept reasonably free from symptoms and subsequent complications prevented by teaching them more moderate habits of living and meticulous care of the feet.

Sulfonamide Therapy of Bacterial Endocarditis.—During 1938 to 1941 inclusive 67 patients with bacterial endocarditis were admitted to the Charity Hospital; 42 of them were treated with one or more of the sulfonamides. Streptococcus viridans

was present in the blood cultures of 21 of the 42 patients. All of the 67 patients died; in some there were temporary remissions in the curve of the temperature, but the course of the disease was apparently unaffected by the treatment. Galbreath and Hull observed characteristic lesions of acute or subacute vegetative endocarditis in the 30 patients on whom necropsy was performed. There was no evidence of healing of the lesions. Evidence of embolism was present in 28. The kidneys and spleen were the most frequent sites of infarction, but infarcts of the brain, lungs, heart, liver and thyroid also were encountered.

Archives of Dermatology and Syphilology, Chicago

47:159-300 (Feb.) 1943

Treatment of Psoriasis with Lipotropic Substances Derived from Foodstuffs. P. Gross and Beatrice Kesten, New York.—p. 159.
Doubtful Value of Sodium Thiosulfate in Therapy of Arsenical Dermatitis. E. W. Abramowitz, Marjorie R. Mattice, New York, and I. Botvinick, Bethesda, Md.—p. 175.
Epithelial Cysts. W. R. Love and H. Montgomery, Rochester, Minn.—p. 185.
Symmetric Nevi of Face, Tuberous Sclerosis, Epilepsy and Fibromatous Growth on Scalp: Abnormal Electroencephalograms of Members of the Family; Report of Case. C. K. Good and J. Garb, New York.—p. 197.
Studies on Ointments: III. Ointments Containing Sulfur. E. A. Strakosch, Minneapolis.—p. 216.
*Treatment of Syphilis with Phenarsine Hydrochloride: Preliminary Report. W. E. Long, Boston.—p. 226.
*Phenarsine Hydrochloride in Treatment of Syphilis: Preliminary Report. W. H. Guy, B. A. Goldmann and G. P. Gannon, Pittsburgh.—p. 235.
Fungous Infections of Feet Treated with Camphor Phenol Mixture. W. R. Glenn and H. E. Hailey.—p. 239.
Contact Dermatitis Due to Resin Finished Facing in Cotton Underwear; Report of Case, with Consideration of Cause, Pathogenesis and Related Phenomena. H. Keil, New York.—p. 242.

Treatment of Syphilis with Phenarsine Hydrochloride.—During the last two months Long has given 2,033 injections of phenarsine hydrochloride to 96 syphilitic patients. This new trivalent arsenical preparation is 3-amino-4 hydroxyphenyldichloroarsine hydrochloride. Treponema pallidum rapidly disappeared from infectious lesions, all lesions of early and late syphilis healed rapidly and completely, clinical or infectious relapse did not occur, the serologic reversal was satisfactory and the incidence of abnormal spinal fluids among patients with early syphilis was low. Patients with late syphilis tolerated the drug, their symptomatic improvement was good and the results were entirely satisfactory. Toxic reactions were few, chiefly mild gastrointestinal disturbances. The results suggest that phenarsine hydrochloride is a potent antisyphilitic drug of low toxicity, and the treatment of larger groups of patients appears justified.

Phenarsine Hydrochloride for Syphilis.—Guy, Goldmann and Gannon have been studying the effect of phenarsine hydrochloride on established syphilis. From their preliminary study they feel that the information so far derived suggests that phenarsine hydrochloride may prove more stable than and that it compares favorably with (as to administration and toxicity reports so far) other drugs which are now available and which depend for their efficacy on arsenoxide.

Archives of Otolaryngology, Chicago

37:149-302 (Feb.) 1943

Malignant Tumors of Middle Ear and Mastoid Process. F. A. Figi and B. E. Hempstead, Rochester, Minn.—p. 149.
*Introduction to p_H of Throat. N. D. Fabricant, Chicago.—p. 169.
Fenestration Operation for Otosclerosis: Report of 32 Cases. J. M. Smith, New York.—p. 174.
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Staphylococcic Meningitis from Hippocrates to LeGendre and Beaussenat: A Mortal Disease. W. J. MacNeal, Frances C. Frisbee and Anne Blevins, New York.—p. 199.
*Effect of Newer Sulfanilamide Derivatives on Nasal Mucosa of Rabbits: Preliminary Report. L. K. Gundrum, Los Angeles.—p. 209.
Semicircular Canals as Device for Vectorial Resolution. R. D. Summers, Westminster, Md.; R. Morgan, College Park, Md., and S. P. Reimann, Philadelphia.—p. 219.
Functional Examination of Hearing (concluded). A. Lewy and N. Leshin, Chicago.—p. 242.

Introduction to p_H of Throat.—Fabricant determined the normal, physiologic range in the p_H of the clinically normal throats of 51 men and women. By taking minute to minute readings and utilizing a glass electrode and a Coleman electrometer, he found the normal physiologic p_H values to range from 4.9 to 8. For 54.8 per cent of the subjects the values were within the acid range, for 7.8 per cent within the alkaline range and for 37.4 per cent they fluctuated within a slightly acid, slightly alkaline range. Therefore the throat normally can be either acid or slightly alkaline. The claims advanced by the manufacturers of some local throat medicaments that their particular variety "neutralizes excess acidity in the mouth and throat" and that therefore their product is superior can be challenged when it becomes clear that normally the p_H of the throat is usually within an acid range. Before final suggestions can be made for an appropriate physiologic p_H for a local throat medication, the range of p_H values for the diseased throats of persons and the effect of the local medication on the p_H of the throat in health and in disease must be determined.

Sulfonamides and Nasal Mucosa.—Gundrum instilled three times a day ten drops of one of the following solutions into each nostril of rabbits: a 4.7 per cent solution of sodium sulfathiazole, sulfadiazine or butanoylsulfanilamide or a solution containing neosynephrin hydrochloride for various periods of time. Immediately after the last instillation the animals were killed by intravenous injection of air and their noses were embedded in petrolatum and then examined. There seemed to be considerable discomfort (evidenced by restlessness and audible sounds of distress) after prolonged intranasal application of the sulfonamide compounds. After six days of treatment the mucocutaneous junction of the external nares in all animals treated with butanoylsulfanilamide showed redness, some excoriation and other evidence of severe irritation. At necropsy all animals treated with sulfonamide compounds showed inflammation throughout the nose. This appeared more pronounced in animals treated with sodium sulfathiazole and butanoylsulfanilamide. The posterior portion of the nose was filled with a grayish exudate. The mucous membranes were decidedly thickened. No evidence of injury to bone or cartilage was observed, although there were some areas at which the perichondrium was swollen and desquamated. The sinuses were filled with abundant exudate, consisting of degenerated epithelial cells, round cells, a few giant cells and masses of débris. The destruction seemed as great in the animals treated for ten days as in those treated for thirty days. No apparent discomfort was caused by the instillation of neosynephrin hydrochloride and at necropsy the nasal mucosa remained unchanged. Sections of the lungs revealed no significant changes in the mucosa of the bronchial tree of animals treated with sulfonamide compounds or with neosynephrin hydrochloride.

Archives of Pathology, Chicago

35:207-356 (Feb.) 1943

Morphologic Changes in Human Kidney Following Prolonged Administration of Alkali. J. B. Kirsner, W. L. Palmer and Eleanor Humphreys, Chicago.—p. 207.
Amyloid: III. Properties of Amyloid Deposits Occurring in Several Species Under Diverse Conditions. G. M. Hass, R. Huntington and N. Krumdieck, New York.—p. 226.
Venous Valves in Thromboangiitis Obliterans. E. A. Edwards, Boston, and J. E. Edwards, Washington, D. C.—p. 242.
*Chemotherapy of Experimental Streptococcic Pericarditis: Comparison of Sulfanilamide and an Acetylated Derivative of 4,4'-Diaminodiphenylsulfone Hydrochloride in Treatment of Experimental Beta Hemolytic Streptococcus Pericarditis in Rabbit. R. J. Lebowich, Gloversville, N. Y.—p. 253.
Studies of Cartilage: IV. Morphologic and Chemical Analysis of Aging Human Costal Cartilage. G. M. Hass, New York.—p. 275.
Effects of Radiation on Normal Tissues (concluded). S. Warren, Boston.—p. 304.

Chemotherapy of Experimental Streptococcic Pericarditis.—Lebowich compared the therapeutic efficacy of sulfanilamide and an acetylated derivative of 4,4'-diaminodiphenylsulfone hydrochloride in experimental beta hemolytic streptococcus pericarditis in rabbits. With the object of reducing the acute toxicity of the latter ascorbic acid, nicotinic acid, dextrose, cystine, aminoacetic acid and acetic acid and its in vivo precursors (lactic and pyruvic acids) was tried. After many trials 1 molar acetic acid was selected as the most satisfactory agent. The administration of acetic acid with the sulfone compound definitely lessened the severe acute and chronic toxic effects of the sulfone compound in rabbits. At the same time it did not

materially affect the curative value of the drug. It appeared that acetylation of the sulfone hydrochloride served as a detoxicating mechanism. There was considerable variation in the acetylation of the drug even in the presence of added 1 molar acetic acid in different infected animals. The acetylated derivative of 4,4'-diaminodiphenylsulfone hydrochloride had a distinctly beneficial effect on the natural course of experimental beta hemolytic streptococcus pericarditis in rabbits. It considerably increased the number of cured survivors in comparison with their complete absence in the sulfanilamide treated group and definitely prolonged the average duration of life beyond that of control and sulfanilamide treated animals. The most effective results were among 50 rabbits in which treatment was initiated twelve hours after pericarditis was produced; 49 of these animals were cured. The acetylated derivative of 4,4'-diaminodiphenylsulfone hydrochloride was far superior to sulfanilamide in the rabbits in its effect on the infection.

Endocrinology, Springfield, Ill.

32:1-118 (Jan.) 1943. **Partial Index**

Stimulating Effect of Adrenalectomy on Hair Growth and Melanin Deposition in Black Rats Fed Diets Adequate and Deficient in Filtrate Factors of Vitamin B: Note on Effect of Diet on Postoperative Survival. Elaine P. Ralli and I. Graef, New York.—p. 1.
Qualitative Changes Induced in Gonadotropic Complex of Pituitary by Testosterone Propionate. A. A. Hellbaum, Oklahoma City, and R. O. Greep, New Brunswick, N. J.—p. 33.
*Sugar Content of Blood, Lymph and Artificial Peritoneal Fluid Following Injection of Insulin. K. E. Paschkis and A. Cantarow, Philadelphia.—p. 41.
Study of the Excretion of Pituitary Hormones in Human Urine. G. E. S. Jones and N. L. R. Bucher, Baltimore.—p. 46.
Methods of Administering Desoxycorticosterone and Problem of Its Inactivation by Liver. W. J. Eversole and R. Gaunt, New York.—p. 51.
Metabolism of Estrogens: Effect of Pregnancy on Metabolism in Vitro of Estrone, Estradiol and Estriol. C. G. Heller, Detroit, and Emily J. Heller, Madison, Wis.—p. 64.
Effects of Sex Hormones on Body Growth, Skin, Hair and Sebaceous Glands in Rat. C. W. Hooker and C. A. Pfeiffer, New Haven, Conn.—p. 69.
Evidence Against Progesterone-like Action of Ascorbic Acid. P. C. Pratt, Baltimore.—p. 92.
Inactivation of Testosterone Propionate in Liver During Vitamin B Complex Deficiency: Alteration of Estrogen-Androgen Equilibrium. M. S. Biskind, New York, and G. R. Biskind, San Francisco.—p. 97.

32:119-228 (Feb.) 1943. **Partial Index**

Environmental Modification of Certain Endocrine Phenomena. E. W. Dempsey and H. F. Searles, Boston.—p. 119.
Effect of Histamine on Capillary Permeability in Skin and Muscle of Normal and Adrenalectomized Rats. O. Hechter, Los Angeles.—p. 135.
Influence of Sex and Sex Hormones on Breaking Strength of Bones of Mice. W. U. Gardner, New Haven, Conn.—p. 149.
Effect of Combining Estrogen with Lethal Doses of Roentgen Rays in Swiss Mice. Anne deG. Treadwell, W. U. Gardner and J. H. Lawrence, with technical assistance of F. van Nouhuys, New Haven, Conn.—p. 161.
Activity of Desoxycorticosterone Acetate in Propylene Glycol by Oral and Intravenous Routes in Adrenalectomized Dogs, and Its Effect on Cardiac Arrhythmia of Adrenal Insufficiency. R. A. Cleghorn, A. P. W. Clarke and W. F. Greenwood, Toronto, Canada.—p. 170.
New Color Reaction for Certain Urinary 17-Ketosteroids. G. Pincus, Worcester, Mass.—p. 176.
Effect of Sulfonamides and Thioureas on Thyroid Gland and Basal Metabolism. C. G. MacKenzie and Julia B. MacKenzie, Baltimore.—p. 185.

Sugar Content Following Insulin Injection.—The effect of insulin on the concentration of dextrose in tissue fluids of dogs was studied by Paschkis and Cantarow. Hypoglycemic convulsions and coma occurred four to six hours after a subcutaneous or intravenous injection of insulin. The blood sugar reached hypoglycemic levels usually within two hours. The dextrose content of an originally isoglycemic artificial peritoneal fluid decreased more slowly. Convulsions and coma did not develop in some dogs in spite of low sugar concentrations in the peritoneal fluid and blood. In rats convulsions and coma occurred one and a half to two hours following the administration of insulin; the dextrose content of the artificial peritoneal fluid reached low levels at this time. If the changes in the artificial peritoneal fluid reflect accurately the changes in the extracellular tissue fluids, the convulsions and coma in the dog several hours after the blood sugar has reached its minimal concentration are adequately explained, but there is no explanation for the absence of convulsions or coma in some dogs. In dogs anesthetized with pentobarbital sodium the blood sugar level dropped more rapidly after the administration of insulin than in the unanesthetized animal. The decrease in lymph sugar lagged considerably behind that in blood sugar during the first hour following insulin in the anesthetized dog, but the lymph sugar reached equilibrium with the blood in this respect more rapidly than did the peritoneal fluid. The relation of coma and convulsions to the dextrose content of the peritoneal fluid suggests that the latter may be representative of the normal concentration of dextrose in interstitial fluid.

Experimental Medicine and Surgery, Brooklyn

1:1-104 (Feb.) 1943

Recent Studies on Irreversibility Characteristic of Shock. C. J. Wiggers, Cleveland.—p. 2.
Questions of Significance of Phosphoglyceric Acids Under Pathologic Conditions. C. Neuberg and H. Lustig, New York.—p. 14.
Treatment of Paroxysmal Pulmonary Edema, Special Reference to Forms Occurring Under Wartime Conditions. A. A. Luisada, Waltham, Mass.—p. 22.
Increase of Rate in Paroxysmal Tachycardias After Exercise or Inhalation of Amyl Nitrite. D. Scherf and J. Weissberg, New York.—p. 31.
Therapeutic and Prophylactic Detoxication: Chemotherapeutic Metallic Compounds. G. J. Martin and M. R. Thompson, New York.—p. 38.
Procaine Esterase. B. Kisch, H. Koster and E. Strauss, Brooklyn.—p. 51.
Micro Method for Determination of Procaine and of *p*-Aminobenzoic Acid in Same Biological Fluid. B. Kisch and E. Strauss, Brooklyn.—p. 66.
Procaine Esterase Activity in Human Blood Serum: New Test for Toxic Goiter. H. Koster and B. Kisch, Brooklyn.—p. 71.
Influence of Prostigmine and Related Compounds on Procaine Esterase Activity. B. Kisch, Brooklyn.—p. 84.
Observations on Circulatory System of Combatants During World War I. F. M. Groedel, New York.—p. 94.

Hawaii Medical Journal, Honolulu

2:53-124 (Nov.-Dec.) 1942

*Typhus Fever in Honolulu: Certain Epidemiologic Aspects. J. E. Alicata and Virginia Breaks, Honolulu.—p. 59.
Psychiatric Problems in Wartime Hawaii. E. E. McNiel, Honolulu.—p. 63.
Venereal Disease Control: A Bedtime Story. E. A. Fennel, Honolulu.—p. 67.
Bilateral Dermoid Cyst of Ovary, Complicating Pregnancy: Supplementary Report on Previously Reported Case. H. H. Seiler, Pai, Maui.—p. 72.
Treatment of Tetanus: I. S. F. Stewart, Honolulu.—p. 73.
Id.: II. F. J. Halford, Honolulu.—p. 74.
Preventive Aspects of Tetanus. D. C. Marshall, Honolulu.—p. 78.

Typhus Fever in Honolulu.—Alicata and Breaks state that a strain of local human typhus has been found to be clinically and immunologically identical with that of the local rat and Wilmington strains of endemic typhus. Typhus developed in 73 of 249 guinea pigs inoculated with the brain emulsion of 600 rats trapped in various districts of Honolulu. Assuming that 1 infected guinea pig represented at least 1 infected rat, 73 (12.1 per cent) of the rats harbored typhus virus in the brain. Of the rats trapped in seven districts of Honolulu the highest incidence of typhus infection was in rats from Kaimuki, downtown and Kalihi districts. The same districts also showed the highest incidence of human infection: 202 cases in five years. The surroundings of 43 of 50 of the patients were infested with rats. Typhus virus was found in the brain of 8 rats trapped in seventeen residences in which human typhus had occurred recently. As a result of guinea pig inoculation no typhus virus was found in the brain and fleas of 6 cats and the fleas of 1 dog from four residences with cases of human typhus. Similarly there was no virus in the brain of 109 cats and 26 dogs obtained at random from various parts of Honolulu.

Indiana State Medical Assn. Journal, Indianapolis

36:55-122 (Feb.) 1943

Treatment of Wound in Compound Fractures. R. A. Griswold, Louisville, Ky.—p. 55.
Diagnosis of Chronic Brucellosis. D. L. Urschel, Mentone.—p. 59.
Electrocardiographic Diagnosis and Treatment in Recent Coronary Occlusion. H. N. Middleton, Indianapolis.—p. 64.
Toxic Reactions to Sulfonamides. J. L. Ferry, Whiting.—p. 69.
Adaptability of Various Anesthetic Agents to Certain Types of Operations. C. W. Siekerman, Indianapolis.—p. 72.
Changing Concepts of Tuberculosis. E. W. Custer, South Bend.—p. 75.

Journal of Allergy, St. Louis

14:105-194 (Jan.) 1943

Is Hypersensitiveness to Chemical and Physical Agents Allergic in Nature? J. Bronfenbrenner, St. Louis.—p. 105.
Basic Relationship of Allergy and Immunity. M. B. Cohen, Cleveland. —p. 116.
Studies of Tryptic and Peptic Digestion of Extracts of Giant Ragweed Pollen. G. F. Harsh, San Diego, Calif., and H. L. Huber, Chicago. —p. 121.
Use of Dried Extracts in Practice of Allergy. L. H. Criep, Pittsburgh.—p. 133.
Fatalities and Constitutional Reactions Following Use of Pontocaine. J. W. Thomas, Cleveland, and M. M. Fenton, Detroit.—p. 145.
Kochia Scoparia as Factor in Inhalant Allergy. O. C. Durham, North Chicago, Ill.—p. 160.
Quantitative Determination of Proteins in Allergenic Extracts by Biuret Reaction: Preliminary Report. Mary C. Johnson, St. Louis. —p. 171.
Pharmacologic Study of Epinephrine Suspensions in Oil. R. K. Richards, North Chicago, Ill.—p. 177.
Use of Vitamin B Complex in Treatment of Infantile Eczema. A. Harris and L. N. Gay, Baltimore.—p. 182.

Journal of Clin. Endocrinology, Springfield, Ill.

3:71-130 (Feb.) 1943

*Angina-like Pain: Manifestation of Male Climacterium. T. H. McGavack, New York.—p. 71.
Influence of Menstrual Cycle on Titer of Circulating Allergins. O. C. Hansen-Pruss and Ruth Raymond, Durham, N. C.—p. 81.
Treatment of Obesity. W. C. Cutting, San Francisco.—p. 85.
*Oral Effectiveness of Estrone Sulfate (Conjugated Estrogens-Equine) in Women. S. C. Freed, W. M. Eisin and J. P. Greenhill, Chicago. —p. 89.
Clinical Study of New Type of Estrogenic Preparation for Oral Use. L. A. Gray, Louisville, Ky.—p. 92.
Therapy of Menopause: Superiority of Conjugated Estrogens-Equine over Diethylstilbestrol. S. J. Glass and G. Rosenblum, Los Angeles. —p. 95.
Oral Use of Conjugated Estrogens-Equine. E. L. Sevringhaus and Ruth St. John, Madison, Wis.—p. 98.
Significance of Ketosis. E. M. MacKay, La Jolla, Calif.—p. 101.

Angina-like Pain in Male Climacterium.—Without making any attempt to draw conclusions, McGavack records his observations on 8 men in the climacterium with angina-like cardiac symptoms that were relieved with testosterone therapy after other measures had failed. This response may be used as a simple therapeutic test to differentiate complaints of this nature from those of other causation. The clinical features by which the cardiac syndrome of the male climacterium may be recognized are dull, constant oppression over and to the left of the sternum, a sense of uneasiness and insecurity throughout the chest, attacks of angina-like pain and breathlessness not necessarily related to effort and not relieved by glyceryl trinitrate, long, sighing respirations, paresthesias of various parts of the body, palpitation without any change in heart rate, depression of the ST segment in all three limb leads, associated climacterium symptoms and the relief of these symptoms within twenty-four to forty-eight hours following the parenteral administration of a testosterone preparation. In using testosterone in this specific type of cardiac complaint which it is capable of relieving, distinction must be made between cardiac neurosis of the climacterium and an organic lesion.

Oral Effectiveness of Estrone Sulfate in Women.—Estrone (theelin) sulfate was used by Freed, Eisin and Greenhill in the treatment of women with moderate to severe menopausal symptoms. The doses that were tried were 1.25, 0.8 and 0.4 mg. three times a day in tablet form. The patients usually received the highest dose at the beginning of treatment; then after two weeks of such therapy the relief of symptoms was evaluated and the next lower dose level was given, and again after two or three weeks the symptoms were evaluated and the lowest dose was given. Most women obtained satisfactory relief from their symptoms with the smallest dose; the larger doses did not appear to increase significantly the relative number of patients who obtained definite relief, but more patients obtained complete relief. However, the smallest dose may be considered adequate for therapeutic purposes for the average patient. Only 1 of the 45 patients on 0.4 Gm. of estrone sulfate three times a day complained of nausea; with the middle dose given to 47 nausea developed in 2 and 2 complained of dizziness, and 5 of the 60 patients on the large dose had nausea and 4 complained of dizziness.

Journal of Clinical Investigation, Boston

22:1-130 (Jan.) 1943

Urea Clearance and Diuresis in Man. R. Dominguez and Elizabeth Pomerene, Cleveland.—p. 1.
Studies on Renin: Duration of Pressor Effect of Large Doses in Conscious Normal and Renally Abnormal Dogs: Observations on Anesthetized and Uremic Dogs and Anaphylactic and Pathologic Effects of Pig Renin. L. Leiter and Lillian Eichelberger, with technical assistance of M. Roma, Chicago.—p. 11.
Relation of Postural Hemodilution to Paroxysmal Dyspnea. G. A. Perera and R. W. Berliner, New York.—p. 25.
Distribution of Sulfonamide Compounds Between Cells and Serum of Human Blood. M. Heinemann, New Haven, Conn.—p. 29.
Observations on Certain Manifestations of Circulatory Congestion Produced in Dogs by Rapid Infusion. A. Yeomans, R. R. Porter and R. L. Swank, Boston.—p. 33.
Effect of Calcium Carbonate, Aluminum Phosphate and Aluminum Hydroxide on Mineral Excretion in Man. J. B. Kirsner, Chicago. —p. 47.
Effective Stimulus for Increased Pulmonary Ventilation During Muscular Exertion. J. M. Barman, M. F. Moreira and F. Consolazio, Boston.—p. 53.
*Atypical Pneumonia and Psittacosis. J. E. Smadel, New York.—p. 57.
Bence Jones Proteinemia in Multiple Myeloma. D. H. Moore, E. A. Kabat and A. B. Gutman, New York.—p. 67.
*Prevention of Streptococcic Upper Respiratory Infections and Rheumatic Recurrences in Rheumatic Children by Prophylactic Use of Sulfanilamide. Ann G. Kuttner and Gertrude Reyersbach.—p. 77.
Phenylpyruvic Oligophrenia: Report of Case in Infant with Quantitative Chemical Studies of Urine. Margaret Dann, Eleanor Marples and S. Z. Levine, New York—p. 87.
Studies on Experimental and Clinical Hypochloremia in Man. J. B. Kirsner, W. L. Palmer and Kathryn Knowlton, Chicago.—p. 95.
Gastric Secretion: II. Absorption of Radioactive Sodium from Pouches of Body and Antrum of Stomach of Dog. O. Cope, W. E. Cohn and A. G. Brenizer Jr., Boston.—p. 103.
Id.: III. Absorption of Heavy Water from Pouches of Body and Antrum of Stomach of Dog. O. Cope, Hester Blatt and Margaret R. Ball, Boston.—p. 111.
*Community Study of Carriers in Epidemic Poliomyelitis. H. A. Wenner, New Haven, Conn., and A. E. Casey, New Orleans. —p. 117.
Coagulation Defect in Hemophilia: Comparison of Proteolytic Activity of Chloroform Preparations of Hemophilic and Normal Human Plasma. H. J. Tagnon, C. S. Davidson and F. H. L. Taylor, Boston. —p. 127.

Atypical Pneumonia and Psittacosis.—According to Smadel, 10 of the 45 sporadic cases of atypical pneumonia encountered among large eastern urban populations were caused by infection with strains of the virus of psittacosis. Five additional cases in the series may have been psittacosis but the diagnosis was indefinite because a significant rise in antibody titer was not demonstrated in the convalescent serum. In no instance was the virus of lymphocytic choriomeningitis associated with the illness, and in only 2 instances was influenza virus even suspected as a possible etiologic agent. It is important to establish an etiologic diagnosis in cases of atypical pneumonia, and laboratory data are necessary for such a diagnosis. Strains of virus of the psittacosis group which were isolated from 2 patients and from 1 of the patient's pigeons are being studied. Strains isolated from these sources have many properties in common with the strains of psittacosis virus isolated from psittacine birds and from pigeons and with the virus of meningopneumonitis. The authors have been impressed by the high incidence of psittacosis in the 45 patients selected at random and by the frequency with which some sort of association can be demonstrated between the patients and nonpsittacine birds infected with one of the psittacosis group of viruses.

Prophylactic Use of Sulfanilamide in Rheumatic Children.—During the winters of 1940-1941 and 1941-1942 Kuttner and Reyersbach divided the 108 rheumatic children at Irvington House into two closely matched groups. Beginning in October 1940 and continuing until the following June, half of the children were given small daily doses of sulfanilamide. The other 54 children served as controls. During the second winter 54 children were given sulfanilamide and 50 served as controls. Only children who showed neither clinical nor laboratory signs of rheumatic activity received this drug. During the first winter 78 per cent of the 108 patients possibly could have had heart disease and 22 per cent had definite cardiac lesions, and during the second winter the percentage with organic heart disease increased to 49 per cent. Streptococcic infections of the upper part of the respiratory tract and rheumatic relapses were prevented by the sulfanilamide. Sufficiently severe toxic manifestations, necessitating the withdrawal of the drug, occurred in

15 per cent of the patients. The other children tolerated the drug well. The effectiveness of sulfanilamide in preventing rheumatic recurrences indicates that infection with group A hemolytic streptococci is an important factor in the causation of rheumatic fever.

Community Study of Carriers in Epidemic Poliomyelitis.—Wenner and Casey tested postepidemically the stools of 176 of 181 persons living in a section of a small town of 1,670 population to determine the carrier rate for the virus of poliomyelitis in the adult and juvenile population. Most of the town's cases of the disease had occurred in the section where the 181 persons lived. The virus of poliomyelitis was detected in the stools of 3 children between 2 and 6 years of age and in none of the stools from adults. Though evidence of poliomyelitis was widespread in the population, only individuals who were ill at the end of the epidemic had positive stools, indicating that the ease of detection of the virus in the population at risk diminishes with the decline of the epidemic.

Journal Industrial Hygiene & Toxicology, Baltimore

24:295-370 (Dec.) 1942

Response of Laboratory Animals to Monomeric Styrene. H. C. Spencer, D. D. Irish, E. M. Adams and V. K. Rowe, Midland, Mich.—p. 295.
Oxygen Under Pressure in Carbon Monoxide Poisoning: I. Effect on Dogs and Guinea Pigs. E. End and C. W. Long, Milwaukee. —p. 302.
Investigation into Effects of Continued Exposure to Vapor of Volatile Solvents. Esther M. Killick and R. S. F. Schilling, London, England.—p. 307.
Measurements of Concentrations of Air Borne Dusts. T. Bedford and C. G. Warner, London, England.—p. 315.
Health Hazards in Fur Industry. H. Heimann, New York.—p. 322.
Supplementary Feeding in Industry. H. W. Haggard, New Haven, Conn.—p. 332.

Journal of Infectious Diseases, Chicago

71:193-278 (Nov.-Dec.) 1942

Physiologic Studies of Brucella: I. Quantitative Accessory Growth Factor Requirement of Certain Strains of Brucella. N. B. McCullough and L. A. Dick, Austin, Texas.—p. 193.
Id.: II. Accessory Growth Factor Requirement of Recently Isolated Strains of Brucella Abortus. N. B. McCullough and L. A. Dick, Austin, Texas.—p. 198.
Accessory Growth Factor Requirements of Members of Genus Pasteurella. S. Berkman, Chicago.—p. 201.
Titration of Tetanal Toxins, Toxoids and Antitoxins with the Flocculative Test. H. Goldie, C. H. Parsons and Myrtle Scott Bowers, Pearl River, N. Y.—p. 212.
Death of Tubercle Bacilli Subjected to Oxygen Deprivation in Presence of Moisture and of Moisture and of Warmth. T. S. Potter, Chicago.—p. 220.
Significance of Incubation Temperature of Recovery Cultures in Determining Spore Resistance to Heat. O. B. Williams and J. M. Reed, Washington, D. C.—p. 225.
Study of Bacteriostatic Activity of Fluoro and Bromo Derivatives of Some Organic Acids. G. P. Hager and T. C. Grubb, Baltimore. —p. 228.
*Asphyxiated Bacteria as Vaccine in Tuberculosis. T. S. Potter, Chicago.—p. 232.
*Beta Hemolytic Streptococci Isolated from Public Room Floors. W. G. Walter and G. J. Hucker, Geneva, N. Y.—p. 237.
Mechanism of Action of Certain Sulfonamide Compounds. A. Dorfman and S. A. Koser, Chicago.—p. 241.
Factors in Preservation of Distemper Virus. H. A. Siedentopf and R. G. Green, Minneapolis.—p. 253.
Absorption of Botulinum Toxin from the Colon of Macaca Mulatta. G. M. Dack and Dorothy Hoskins, Chicago.—p. 260.
Pertussis Toxin. M. E. Roberts and Anne G. Ospeck, Pearl River, N. Y.—p. 264.
Experimental Eosinophilia with Keratin from Ascaris Suum and Other Sources. D. H. Campbell, Chicago.—p. 270.

Asphyxiated Bacteria as Tuberculosis Vaccine.—Potter states that avian tubercle bacilli, when completely deprived of virulence by asphyxia, without the use of coagulating heat, retain constituents which are able to confer decided, though as yet incomplete, protection in the rabbit against infection with virulent avian tubercle bacilli.

Beta Hemolytic Streptococci on Floors of Public Rooms.—Walter and Hucker studied the one hundred and thirteen sweepings collected in thirty-seven different rooms from six schools, a boys' dormitory, a theater and a hotel. They found beta hemolytic streptococci in the sweepings from twenty-two of the rooms investigated. From February until May hemolytic streptococci could be readily obtained from certain floors, but with warm weather this was impossible. Physiologic and serologic tests performed on seventeen representative cultures caused the organisms of seven to be classified in Lancefield's group A, two in group B, one in group C and seven possibly in group G.

Journal of Lab. and Clinical Medicine, St. Louis

28:531-670 (Feb.) 1943

War and Medicine. H. E. Sigerist, Baltimore.—p. 531.
Bacterial Warfare: Use of Biologic Agents in Warfare. L. A. Fox. —p. 539.
Caring for the Navy's Health. L. W. Johnson.—p. 554.
Definition and Scope of Nautical Medicine. L. H. Roddis.—p. 564.
Adaptation of Technician Instruction to the Military Emergency. J. W. Love, I. Rothstein and J. Cebel.—p. 566.
The General Mission of Military Aviation Medicine. D. N. W. Grant. —p. 577.
Physiology of Flying: Hazards and Remedies. D. B. Dill, Dayton, Ohio.—p. 585.
Some Problems in Aviation Medicine. A. Graybiel, Boston.—p. 590.
Physiology of Fatigue: Factors and Criteria of Endurance. D. B. Dill, Dayton, Ohio.—p. 596.
Influence of Amphetamine (Benzedrine) Sulfate and Caffeine on Performance of Rapidly Exhausting Work by Untrained Subjects. E. E. Foltz, M. J. Schiffrin and A. C. Ivy, Chicago.—p. 601.
Influence of Amphetamine (Benzedrine) Sulfate, d-Desoxyephedrine Hydrochloride (Pervitin) and Caffeine on Work Output and Recovery When Rapidly Exhausting Work Is Done by Trained Subjects. E. E. Flotz, A. C. Ivy and C. J. Barborka, Chicago.—p. 603.
Plantar Reflex as Criterion of Endurance. P. I. Yakovlev, Waltham, Mass.—p. 606.
Military Aspects of Allergy. P. Blank.—p. 609.
Heart Disease in Middle Age. C. C. Shaw.—p. 619.
Responsibilities of the Army Roentgenologist. A. A. de Lorimer. —p. 628.
Effects of Modern Warfare on Civil Population: Experience of Great Britain. D. Denny-Brown, Boston.—p. 641.
*Chemotherapy of Bacillary Dysentery: Further Observations on Sulfaguanidine. G. M. Lyon.—p. 645.
Medical Illustration in the United States Army: Historical and Present Considerations. R. P. Creer.—p. 651.
War and Disease. R. H. Major, Kansas City, Kan.—p. 661.

Chemotherapy of Bacillary Dysentery.—Lyon used sulfaguanidine in the treatment of alternate patients with acute bacillary dysentery in an area with what was probably the highest incidence of the disease since 1926. With few exceptions the initial dose was 0.1 Gm. per kilogram of body weight, while the maintenance dose was 0.05 Gm. per kilogram of body weight administered orally every four hours until the stools were less than five in twenty-four hours, and then 0.05 Gm. every eight hours for forty-eight to seventy-two hours. An adequate urinary output should be maintained and any untoward effects detected and treated. Sulfaguanidine proved to be an effective therapeutic agent when used in the manner described and, if treatment was begun during the first five days of illness, recovery usually occurred in two to five days. Usually five days of chemotherapy was all that was required. There were no toxic effects. When chemotherapy was not begun within five days of the onset of fever or diarrhea, results were frequently amazingly good but failures were more frequent.

Journal of Nervous and Mental Disease, New York

97:133-260 (Feb.) 1943

Syndrome of Amyotrophic Lateral Sclerosis of Bulbar Type Associated with Platybasia. R. H. Young, Omaha.—p. 133.
Intravenous Injection of Insulin in the Treatment of Schizophrenia. M. C. Petersen and E. H. Lutz, Willmar, Minn.—p. 141.
New Pyramidal Sign of Great Frequency. L. Allen and H. Cleckley, Augusta, Ga.—p. 146.
*Studies on Use of Refrigeration Therapy in Mental Disease: Report of Sixteen Cases. D. Goldman and M. Murray, Cincinnati.—p. 152.
Aseptic Lymphocytic Meningitis in Case of Infantile Cerebral Palsy, Adult Form. L. B. Shapiro, Fort Bliss, Texas.—p. 166.
Role of Hostility in Affective Psychoses. Jane E. Oltman and S. Friedman, Newton, Conn.—p. 170.
Innervation and "Tonus" of Striated Muscle in Man. E. Jacobson, Chicago.—p. 197.

Refrigeration Therapy in Mental Disease.—Observations on 16 patients with mental disease that Goldman and Murray subjected to refrigeration treatment are recorded. At the necropsy of the 2 patients who died it was found that death was caused by pneumonia. Nonfatal respiratory complications were observed frequently. Mental improvement did not ensue and treatment was discontinued.

Journal Pharmacology & Exper. Therap., Baltimore

77:1-106 (Jan.) 1943

Mode of Action of Sulfonamides: III. Purines, Amino Acids, Peptones and Pancreas as Antagonists and Potentiators of Sulfonamide in Escherichia Coli. H. I. Kohn, Durham, N. C., and J. S. Harris, Fort Bragg, N. C.—p. 1.
Studies on Modification of Morphine Abstinence Syndrome by Drugs. C. K. Himmelsbach and H. L. Andrews, Lexington, Ky.—p. 17.
Nutritional Degeneration of Optic Nerve in Rats: Its Relation to Tryparsamide Amblyopia. W. McDermott, B. Webster, R. Baker, J. Lockhart and R. Tompsett, New York.—p. 24.
Studies on Shock Induced by Hemorrhage: III. Correlation of Plasma Thiamine Content with Resistance to Shock in Dogs. W. M. Govier, Nashville, Tenn.—p. 40.
Effect of Chloroform and Ether on Activity of Choline Esterase. Clara Torda, New York.—p. 50.
Comparative Physiologic Actions of Some β-(Imidazolyl-4-) Alkylamines. G. A. Alles, B. B. Wisegarver and Mildred A. Shull, San Francisco.—p. 54.
*Toxicity of Tannic Acid. H. J. Robinson and O. E. Graessle, Rahway, N. J.—p. 63.
*Toxicity and Efficacy of Penicillin. H. J. Robinson, Rahway, N. J.—p. 70.
Effect of Drugs on Pulmonary and Systemic Arterial Pressures in Trained Unanesthetized Dog: Renin, Angiotonin, Adrenalin, Pitressin, Paredrine, Digitalis, Acetylcholine, Papaverine, Histamine, Amyl Nitrite and Aminophyllin. L. Friedberg, L. N. Katz and F. S. Steinitz, Chicago.—p. 80.

Toxicity of Tannic Acid.—In investigating the toxicity of tannic acid in animals under conditions similar to its clinical use, Robinson and Graessle found that it is definitely toxic for mice and rats when given intravenously or subcutaneously. When applied to deep subcutaneous tissues following surgical removal of the skin, tannic acid was lethal for mice but not for rats or rabbits. Tannic acid, or possibly its degradation products, could be detected in the urine of all these animals. Hepatic damage was produced in rabbits when tannic acid was administered subcutaneously but not when it was applied to denuded surfaces. Therefore hepatic damage appears to depend on the quantity of tannic acid absorbed. When injected intraperitoneally, tannic acid decidedly depressed the water diuresis of rats. This depression was not produced by large doses of the drug subcutaneously or locally to denuded surfaces.

Toxicity and Efficacy of Penicillin.—Robinson tested the toxicity and efficacy of penicillin in certain bacterial, virus and protozoan infections in mice. Crude penicillin was toxic for mice when given intravenously in single doses of 0.5, 1, 1.5 and 2 Gm. per kilogram of weight. More highly purified preparations appeared to be less toxic. Penicillin given subcutaneously was well tolerated for five daily doses of 1.6 Gm. per kilogram of weight. Under the same conditions 3.2 Gm. was lethal for some mice. The toxic dose of crude penicillin appears to be about sixty-four times the effective therapeutic dose. On the basis of weight, penicillin appeared more effective than sulfanilamide and its derivatives in streptococcic, pneumococcic and staphylococcic infection in mice. Penicillin had no apparent effect in experimental infection caused by Mycobacterium tuberculosis, Trypanosoma equiperdum or the influenza virus PR8.

Missouri State Medical Assn. Journal, St. Louis

40:29-60 (Feb.) 1943

The Eyes in School Years. W. L. Post, Joplin.—p. 29.
Problems of the Eyes in the Aged. C. S. Smith, Springfield.—p. 30.
Glaucoma and Cataract. G. A. Hornback, Hannibal.—p. 32.
Industrial Accidents to the Eyes. C. P. Dyer, St. Louis.—p. 32.
Should the Cancer Victim Be Told the Truth? M. G. Seelig, St. Louis.—p. 33.
*Neurologic Accidents Following Serum Administration. F. A. Carmichael, St. Joseph.—p. 36.
Hyperinsulinism. R. E. Myers, Joplin.—p. 38.
Infectious Mononucleosis: Report of Seronegative Case. R. O. Pearman, San Luis, Calif., and H. J. Brumm, St. Joseph.—p. 41.
Acute Appendicitis Complicating Labor: Report of Case. H. Czupryk and N. A. Schneider, St. Louis.—p. 43.

Neurologic Accidents Following Serum Administration.—While neurologic accidents following vaccine and serum administered for prophylactic and therapeutic purposes are comparatively rare, the constantly widening field of their use has emphasized their possible role in neurologic disorders of obscure etiology. Carmichael points out that the urticarial rash, articular pains, headache and vomiting with a rise in temperature following administration of serum to the sensitized patient may be followed immediately or remotely by evidences of neurologic involvement which may be prolonged and seriously disabling. Between 1922 and 1928 the frequent occurrence of these neurologic sequelae, particularly in England and the Netherlands, prompted the appointment of a commission to study the problem. Up to that time 159 cases were studied in England and some 80 odd in the Netherlands. Since this study a large number of cases have been reported in European literature and not a few in this country. The report submitted by the English commission was not conclusive, although it generally was conceded that the specific nature of the antigen was not the factor responsible for the accident but rather a protein sensitivity on the part of the patient. The commission's conclusions are difficult to disprove and are supported by the newer theories relating to the virus infections. The greatest incidence of accidents involving the nervous system followed the prophylactic use of vaccines and serums. Recent discussion as to the exact nature of these sequelae has brought forward various hypotheses. The two that have the most proponents are (1) anaphylactic reaction and (2) the theory that the injection of the protein activates a latent virus always present in the body but which under normal conditions is dormant and innocuous but is pathologic or noxious only in response to some excitant which causes a biochemical change in certain tissue cells vulnerable to attack.

New England Journal of Medicine, Boston

228:81-112 (Jan. 21) 1943

*Dissolution of Phosphatic Urinary Calculi by Retrograde Introduction of Citrate Solution Containing Magnesium. H. I. Suby and F. Albright, Boston.—p. 81.
Epidemiologic Aspects of Anthrax in Massachusetts. I. R. Tabershaw and G. E. Morris, Boston.—p. 92.
Montesquieu: Biologist of the Eighteenth Century. Camille Dreyfus, New York.—p. 94.
Obstetrics: Medical Aspects. D. E. Reid, Boston.—p. 97.

Dissolution of Urinary Calculi.—Suby and Albright found that citrate solutions, rendered less irritable by the addition of magnesium, are practical for the dissolution of urinary calculi composed of calcium phosphate, calcium carbonate or magnesium ammonium phosphate. They report 6 cases in which the use of such a solution dissolved the stones partially or completely. In 2 cases the solution was introduced through ureteral catheters and in 4 through nephrostomy tubes. The attempted dissolution of a large stone in 1 patient was not successful because a thin coating of unidentified material, possibly old blood clot, prevented the solution from coming in contact with the stone. Ideally the hydrodynamics should be such that the pressure in the kidney is great enough to get the solution around the stone, but sufficiently intermittent so that constant back pressure does not cause a pyelonephritis. An air pyelogram will indicate whether a stone is in contact with the kidney pelvis and the course of the stone's dissolution. Before attempting to dissolve a stone it is necessary to determine by a roentgenogram whether one is dealing with a phosphatic stone.

New Orleans Medical and Surgical Journal

95:357-400 (Feb.) 1943

Tumors of Central Nervous System: Pathology of Tumors of Nervous System. H. P. Newhill, New Orleans.—p. 357.
Id.: Psychiatric Aspects of Cerebral Tumors. H. R. Unsworth, New Orleans.—p. 363.
Id.: Diagnostic Factors in Cranial Tumor. L. A. Golden, New Orleans.—p. 366.
Id.: Brain Tumors. G. C. Anderson, New Orleans.—p. 369.
Id.: Laminectomy for Spinal Cord Tumor and Other Diseases: Analysis of 151 Consecutive Cases. D. H. Echols, New Orleans.—p. 373.
*Pelvic Thrombophlebitis: Study of Etiologic Factors from Statistical Standpoint. E. W. Nelson, J. R. Jones and C. G. Collins, New Orleans.—p. 375.
*Autoagglutination, Cold Agglutination, Pseudoagglutination and Rh Factor: Factors of Practical Importance in Transfusion of Blood. D. Lindsey, New Orleans.—p. 382.
Emblems of Medicine. J. A. Durand, Baton Rouge, La.—p. 387.

Pelvic Thrombophlebitis.—The records of the Charity Hospital for the last five years reveal 41 cases of pelvic thrombophlebitis which was confirmed at operation or proved at necropsy. All but 7 of these patients died. The 41 patients in no way represent the true incidence of the disease, as Nelson,

Jones and Collins have no way of determining how many patients recover spontaneously or in how many under conservative management the diagnosis is never established. Still more important, they have no way of determining how many patients die of the condition unless a necropsy is performed in every instance. Delivery, abortion, operation and irradiation were the most frequent precursors. No age group was exempt except, perhaps, childhood. Repeated aerobic and anaerobic blood cultures are necessary to establish the etiology. Staphylococcus aureus and nonhemolytic streptococci are frequent offenders. The uterine veins, iliac veins and inferior vena cava were frequently involved. Pulmonary infarction was extremely common, for the diagnosis of which roentgen study should be employed. Ligation of the inferior vena cava appears to lower the mortality rate, as compared to other operative procedures. Delay in operation and overconservative therapy result in an unnecessarily high mortality rate.

Agglutination and Rh Factor.—Lindsey states that cells washed in warm saline solution to remove possible autoagglutinins should be used in typing and matching blood. Before transfusion a patient's serum should be tested against his own cells at ice box temperature to detect autoagglutinations which may cause a post-transfusion reaction. If autoagglutinins are demonstrated the patient should receive only small amounts of blood. If a transfusion is to be given or, when a transfusion is to be given in pregnancy or the puerperium, compatibility tests should be made at ice box temperature to exclude Rh agglutinins. In testing the serum of a patient containing autoagglutinins active at room temperature the serum might be erroneously classified as belonging to group O, since it would agglutinate the test cells of groups A and B. Likewise if unwashed cells or cells washed at room temperature are used the serum might be erroneously classified as group AB, since the cells would agglutinate in both A and B test serums because of the absorbed autoagglutinin. Similarly no donor would be found compatible if serum collected at room temperature or unwashed cells should be used in cross matching. A true reaction could be obtained only by some process designed to free the cells or the serum of the autoagglutinin: (1) by using serum separated at 0 C., (2) using cells washed several times in warm (40 C.) saline solution and (3) carrying out typing and matching reactions in an incubator at 37 C.

New York State Journal of Medicine, New York

43:193-288 (Feb. 1) 1943

Therapy of Wartime Injuries: Blood, Blood Plasma and Blood Substitutes. J. W. Howland, Rochester.—p. 221.
Id.: Treatment of Burns. J. S. Houck, Rochester.—p. 226.
Id.: Shock. M. A. Barnard, Rochester.—p. 228.
Id.: Treatment of War Fractures Among Civilian Population. J. P. Henry, Rochester.—p. 230.
Factors in Obstetric Care: Report of Rural Study. H. R. O'Brien, Hartford, Conn.—p. 236.
Present Status of Gold Salt Therapy in Europe and America in Treatment of Chronic Arthritis. R. G. Snyder and C. Traeger, New York. —p. 245.

43:289-384 (Feb. 15) 1943

Some Differential Points in Diagnosis of Atypical Pneumonia of Probable Virus Origin. Anne M. Bahlke, Albany.—p. 315.
Functional Study of Liver and Its Clinical Evaluation. C. H. Greene and M. Bruger, New York.—p. 318.
New Approach to Cross Cylinder Tests. J. I. Pascal, New York. —p. 323.
The Psychiatrist and the Behavior Problem. A. B. Siewers, Syracuse. —p. 328.
Osteoid Osteoma: Report of 5 Cases. S. Kleinberg, New York. —p. 332.
Histaminase Intramuscularly in Hay Fever. D. E. Frank, New York. —p. 339.

Pennsylvania Medical Journal, Harrisburg

46:305-400 (Jan.) 1943

Traumatic Shock. A. H. Ver Brugghen, Chicago.—p. 319.
Treatment of Head Injuries in War. F. C. Grant, Philadelphia. —p. 335.
All That Is Called Pneumonia Is Not Pneumonia: Critical Analysis of 377 Deaths Ascribed to Pneumonia Occurring in Hospitals in Central Pennsylvania. C. P. Faller, K. E. Quickel and C. W. Smith, Harrisburg.—p. 339.
Standardization of Adrenal Cortex Extract. J. M. Rogoff, Pittsburgh. —p. 346.
Pulmonic Contusion in Intact Thorax: Report of Case. J. D. Brown, Philadelphia, and P. S. Friedman, Melrose Park.—p. 352.

Public Health Reports, Washington, D. C.

58:121-156 (Jan. 22) 1943

Nationwide Study of Bacterial Etiology of Pneumonias. A. S. Rumreich, H. J. Shaughnessy, J. V. Mulcahy, J. C. Willett, W. H. Kellogg and W. C. Mitchell.—p. 121.
Strain of Endemic Typhus Fever Virus Isolated from House Mice (Mus Musculus Musculus). G. D. Brigham and E. G. Pickens. —p. 135.
Growth Measurements of Anopheles Quadrimaculatus Larvae. F. L. Knowles.—p. 136.
Mouse Protective Values of Antimeningococcus Serum in Comparison with Precipitation in Immunne Serum Agar Plates. Margaret Pittman.—p. 139.

58:209-248 (Feb. 5) 1943

Identification and Localization of Lead in Bone Tissue. L. T. Fairhall.—p. 209.
Microclimate of Diurnal Resting Places of Anopheles Quadrimaculatus Say in Vicinity of Reelfoot Lake. D. E. Eyles and L. K. Bishop. —p. 217.
Rocky Mountain Spotted Fever: Duration of Potency of Tick Tissue Vaccine. R. R. Parker and E. A. Steinhaus.—p. 230.
Disabling Morbidity Among Industrial Workers, Third Quarter of 1942, with Note on Occurrence of Respiratory Diseases, 1933-1942. W. M. Gafafer.—p. 232.

58:249-296 (Feb. 12) 1943

Distribution of Health Services in Structure of State Goverment: Chapter X. Central State Services Affecting All Branches of Public Health Work. J. W. Mountin and Evelyn Flook.—p. 249.

Radiology, Syracuse, N. Y.

40:115-220 (Feb.) 1943

The Betatron. D. W. Kerst, Urbana, Ill.—p. 115.
Experimental Depth Dose for 5, 10, 15 and 20 Million Volt X-Rays. H. W. Koch, D. W. Kerst and P. Morrison, Urbana, Ill.—p. 120.
Factors Concerned in Abnormal Distribution of Barium in Small Bowel. M. L. Sussman and E. Wachtel, New York.—p. 128.
X-Ray Therapy in Fluoroscopy. A. L. L. Bell, Brooklyn.—p. 139.
Osteogenesis Imperfecta. W. H. Bickel, R. K. Ghormley and J. D. Camp, Rochester, Minn.—p. 145.
Osteopetrosis (Albers-Schönberg Disease): Case Report. C. A. W. Zimmermann 3d, Cape Girardeau, Mo.—p. 155.
*Roentgen Features of Scleroderma and Acrosclerosis. J. Jackman, Cleveland.—p. 163.
Congenital Atresia of Esophagus: Report of 4 Cases. L. K. Chont and L. J. Starry, Oklahoma City.—p. 169.
Roentgenologic Manifestations and Clinical Symptoms of Rib Abnormalities. H. A. Steiner, Denver.—p. 175.
Experimental Modification of Radiosensitivity of Embryonic Cells. J. P. Goodrich, Iowa City.—p. 179.
Employer Is Liable in Common Law for Physician's Fees for Services Rendered Injured Employee. I. S. Trostler, Chicago.—p. 191.

Roentgen Features of Scleroderma and Acrosclerosis. —Jackman discusses the important roentgen features of scleroderma and acrosclerosis by presenting cases that show most of the important roentgen changes, which are calcinosis, changes in the osseous system, pulmonary fibrosis (questionable) and esophageal stenosis (occasional). The essential pathologic change in scleroderma is thickening and sclerosis of the collagenous bundles. The disease is not limited to the skin, and underlying connective tissue, muscle, bone and fascia are said to participate in the pathologic change. This may explain the occurrence of pulmonary fibrosis and esophageal stenosis. The necrosis of the terminal phalanges of the fingers is secondary to the associated vasospastic phenomena which accompany acrosclerosis. The calcinosis may be explained on the solubility of lime salts in acid and alkaline mediums. These salts are more soluble in acid mediums and remain in solution in normal tissues with a high carbon dioxide tension because of active metabolism. In necrotic tissue there is lowering of the carbon dioxide tension as a result of lowered metabolism. The reaction becomes alkaline, and lime salts are precipitated from blood and lymph which diffuse into the area.

South Carolina Medical Assn. Journal, Florence

39:29-52 (Feb.) 1943

Your Federal Income Tax. H. W. Jaillette, Florence.—p. 29.
Typhoid Vaccine Immunization (Historical Study). L. Banov, Charleston.—p. 33.
Report of 2 Cases of Acute Bichloride of Mercury Poisoning Treated with Sodium Thiosulfate and Sodium Formaldehyde Sulfaoxylate. R. W. Lominack, Charlotte.—p. 36.

Surgery, St. Louis

13:177-332 (Feb.) 1943

*Surgery of Spleen in Blood Dyscrasias. E. L. Eliason and L. W. Stevens, Philadelphia.—p. 177.
Shock: Physiologic and Clinical Aspects. E. B. Mahoney and J. W. Howland, Rochester, N. Y.—p. 188.
Studies of Arterial Oxygen Saturation in Postoperative Period After Pulmonary Resection. H. C. Maier and A. Cournand, New York.—p. 199.
Effect of Atropine on Gastric Secretion During Night. F. B. Mears, Minneapolis.—p. 214.
Endometriosis: Clinical and Therapeutic Considerations: Report of 120 Private Cases. R. L. Sanders, Memphis, Tenn.—p. 224.
Elevation of First Metatarsal Bone with Hallux Equinus. G. Hammond, Ann Arbor, Mich.—p. 240.
*Livedo Reticularis and Vasospasm Treated by Sympathectomy, with Some Notes on Sympathetic Anesthesia in Labor: Case. H. B. Shumacker Jr., Baltimore.—p. 257.
Embolectomy for Riding Embolus of Abdominal Aorta. H. T. Wikle and N. Cabot, Brooklyn.—p. 264.
Centennial of Crawford Long's First Use of Ether in Surgery. F. K. Boland, Atlanta, Ga.—p. 270.
Acute Diverticulitis of Cecum. E. Schnug, Cincinnati.—p. 282.
Synovial Sarcoma: Report of 2 Cases. J. A. Lazarus and M. S. Marks, New York.—p. 290.
Metastatic Brain Abscess: Complicating Inconspicuous Pulmonary Suppuration in Presence of Chronic Nontuberculous Empyema. R. W. Buxton and M. L. White Jr., Ann Arbor, Mich.—p. 309.
Bleeding Time in Mice Following Oral Administration of 3,3'-Methylene-Bis-(4-Hydroxycoumarin). J. J. Lalich, Margaret H. Lalich and A. L. Copley, Kansas City, Kan.—p. 316.
New Method of Skin Protection for Ileostomies and Colostomies. D. Presman, Chicago.—p. 322.

Surgery of Spleen in Blood Dyscrasias.—Eliason and Stevens review the literature of the last ten years and give a statistical report showing the mortality and life expectancy following splenectomy in splenic anemia, thrombocytopenic purpura and icteroanemia. To this they add a report of 63 personal cases. Splenectomy gives the patient with splenic anemia the best chance for recovery, and the earlier in the disease it is performed, the lower the surgical mortality and the greater the life expectancy. It is Eliason's opinion that this is the only choice with cirrhosis. The operative mortality should not be more than 10 per cent; some patients have lived twenty years postoperatively. Patients with chronic hemorrhagic purpura who do not respond to conservative therapy should be subjected to splenectomy. Also in acute or fulminating hemorrhagic purpura which does not respond promptly to conservative measures it should be performed before the patient's condition becomes critical. It is important to eliminate infection in the prevention of recurrent purpura. Splenectomy is the treatment of choice in hemolytic jaundice, particularly in children. It is preferable to perform the operation during a remission. In adults splenectomy is not always necessary.

Livedo Reticularis and Vasospasm.—Shumacker cites an unusual case of vasospasm of the lower extremities associated with livedo reticularis. Lumbar sympathectomy gave an excellent result and appears to be indicated in cases of this kind. Because of the absence of pain with the uterine contractions of labor in this patient, the possibility of inhibiting painful stimuli from the uterus by interruption of the lumbar sympathetic impulses is being investigated. The patient reacted normally to other painful stimuli. It is not certain whether there was a causal relationship between the excision of the lumbar sympathetic chains and the absence of pain with uterine contractions. From the data available the best explanation of the mechanism of livedo is that there are areas of maximal blood supply in the skin, perhaps from capillary arborizations from central arterioles which enter the skin from below. In these central areas the tone of the capillaries is greater and the blood flow faster than in the surrounding periphery. Either through organic changes in the blood vessels or through vasospasm of the arteries and arterioles supplying the skin, the capillary atony and stagnation of blood flow in the peripheral areas is further increased. This increase causes the livid discoloration in annular rings surrounding central pale areas. The discoloration is intensified by exposure to cold, which further increases the vasoconstriction of the arteries and arterioles supplying the skin. The livid areas disappear or change to pink when vascular spasm is released by warming the body or by sympathetic interruption. Dependence of the affected part similarly brings about some intensification. The persistence of some mottling after warming the body or sympathectomy is due to the fact that atony and dilatation of the capillaries may be permanent. The disappearance of the livedo on elevation of the affected limb may be explained by the fact that the venules draining the capillary bed in the peripheral annular zones are somewhat dilated.

Texas State Journal of Medicine, Fort Worth

38:581-632 (Feb.) 1943

The Feeding of Children. C. A. Stewart, New Orleans.—p. 586.
Acute Rheumatic Fever in Its Various Manifestations. A. W. Harris, Dallas.—p. 590.
Classification of Pelvis in 300 Mexican Women. J. L. Stowe, El Paso.—p. 596.
End Results in Carcinoma of Cervix and Uterus Treated with Radium. H. Dudgeon Jr., Waco.—p. 599.
Carcinoma of Cervix Treated by Intravaginal and Rotation Therapy. J. J. Faust, Tyler.—p. 602.
Bronchogenic Carcinoma: Résumé and Some Newer Concepts. W. S. Wallace, Galveston, and H. G. Jackson, New Haven, Conn.—p. 605.
Cover Test as Aid to Diagnosis in Extraocular Muscular Anomalies. C. H. Dolph, Baytown.—p. 612.
Doctor in Court. E. Cox, Houston.—p. 614.

War Medicine, Chicago

3:113-222 (Feb.) 1943

Psychiatry in the Navy. F. M. Harrison.—p. 113.
Psychoneuroses in Military Psychiatry. J. A. Brussel and H. R. Wolpert.—p. 139.
Two Clinical Tests Valuable in War Medicine and in Medicolegal Practice. J. L. Fetterman, Cleveland.—p. 155.
Peptic Ulcer at Fort George G. Meade, Md. C. A. Flood.—p. 160.
Problem of Night Vision. K. Kekcheyev, N. Derzhavin and S. Pilipchuk, Moscow, Soviet Union.—p. 171.
Effective Military Venereal Disease Control Program. B. A. Lieberman Jr.—p. 174.
*Absorption and Excretion of Sulfonamide Compounds Suspended in Oil: Observations on Animals and on Patients with Chronic Osteomyelitis. D. M. Angevine, Wilmington, Del.—p. 186.

Sulfonamides in Oil.—Suspensions of sulfonamide compounds in soybean, corn, sesame, peanut, cottonseed and olive oil, hydrous wool fat and yellow petrolatum were used by Angevine to observe their local reaction, absorption and excretion following single subcutaneous injections into rabbits, rats, 1 dog and in patients with chronic osteomyelitis. All the oils were commercial preparations not further purified, and of them the largest volumes of drug could be added to and the smoothest suspensions obtained with soybean oil, corn oil and sesame oil. There is a slight separation of oil and drug on standing for a few days; however, the suspensions of sulfanilamide, sulfapyridine and sulfadiazine can be readily remixed with a glass rod, and the suspension of sulfathiazole can be remixed, but with more difficulty. Suspensions kept at room temperature for three months are apparently satisfactory. Sulfanilamide, sulfathiazole, sulfadiazine and sulfapyridine can be suspended in oil in high concentrations. Suspensions of sulfanilamide and of sulfathiazole in soybean oil produced only a slight local reaction in animals when they were injected subcutaneously. In animals a single subcutaneous injection of sulfanilamide, sulfathiazole or sulfadiazine suspended in oil was absorbed at a uniform rate and, depending on the dose, produced a concentration of the drug in the blood for as long as eight days. The excretion of the drug in the urine continued for several days after it had disappeared from the blood. Suspensions of sulfanilamide or sulfathiazole in soybean oil were instilled into the infected sinal tracts of 5 patients with osteomyelitis. The drug was present in the blood for six days and was excreted for as long as one hundred and thirty-seven days. The sinuses of 2 of the patients healed completely and those of the others improved. This method of therapy appears to deserve a further trial in chronic osteomyelitis and in other types of infected wounds.

Wisconsin Medical Journal, Madison

42:189-272 (Feb.) 1943

Chest Injuries. J. W. Gale, Madison.—p. 205.
Eye and Ear Complications of Craniocerebral Injuries. W. E. Grove, Milwaukee.—p. 210.
Handicaps of Hernia in Industry. R. W. McNealy, Chicago.—p. 214.
Common Fractures and Their Treatment. H. C. Schumm, Milwaukee.—p. 217.
Reduction of Disability in Fracture Management. C. C. Schneider, Milwaukee.—p. 220.
Traumatic Shock. C. W. Eberbach, Milwaukee.—p. 225.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:121-150 (Jan. 30) 1943

Nature of the Rheumatic Child. D. Hubble.—p. 121.
*Weil's Disease in an Army Camp: Case. S. Varadi.—p. 126.
Inactivation of Phosphorus on Skin. M. W. Goldblatt and S. H. Oakeshott.—p. 128.
Modification for Carbon Dioxide Absorption with Field Pattern Boyle's Apparatus. J. Montgomerie.—p. 129.
New Circle Type Carbon Dioxide Absorber. W. W. Mushin.—p. 130.

Weil's Disease in an Army Camp.—Varadi reports the case of a young soldier who contracted Weil's disease while handling a rat trap. Most of the classic features of the disease were present. The disease could have remained undetected, as the localized rash, which appeared on the seventh day of illness, disappeared quickly. There was a rather extensive involvement of the nervous system. For the first day or two there were signs of slight meningeal participation (nuchal rigidity), which subsided rapidly. The knee and ankle jerk were practically absent from the day of admission (fourth day). The ankle jerk reappeared within twelve days and the knee jerk in about a fortnight. Paresthesia of the skin to heat and vibration subsided at about the time the tendon jerks were returning. These sensory changes were most probably due to a polyneuritis. Leptospiras were found in the patient's urine and in the kidneys, liver and adrenals of the guinea pig inoculated with the patient's urine. The case is a further proof that, whenever an acute febrile illness appears associated with nephritis, severe muscular pain and great tenderness in the muscles of the limbs, Weil's disease should be considered. And if the patient's history reveals the possibility of infection by rats, serum treatment should be introduced at once without waiting for the laboratory confirmation of the diagnosis. This treatment, if started in the preicteric stage, is decidedly beneficial.

Lancet, London

1:129-162 (Jan. 30) 1943

Charles Darwin and Psychotherapy. D. Hubble.—p. 129.
*Propamidine in Chronic Wound Sepsis: Experimental and Clinical Study W. R. Thrower and F. C. O. Valentine.—p. 133.
*Propamidine in Chronic Streptococcic Infection of Raw Surfaces. A. H. McIndoe and A. R. Tilley.—p. 136.
*Propamidine in Burns. G. H. Morley and J. P. Bentley.—p. 138.
Propamidine at an Emergency Medical Service Hospital. F. Kohn, M. H. Hall and Clara D. Cross.—p. 140.
Exposure of Arched Segment of Anterior Tibial Vessels. A. K. Henry.—p. 141.
Bone Changes in Varicose Ulcer. A. P. Bertwistle.—p. 142.
*Murine Typhus in British Soldiers in West Africa. F. Smith and R. W. Evans.—p. 142.

Propamidine in Chronic Wound Sepsis.—Bacteriostatic action of amidines, unlike the sulfonamides, is not inhibited by the peptones and other constituents of pus and tissue fluids in wounds. Thrower and Valentine determined the local value of these compounds in wound sepsis, particularly the action of 4:4' diamidinodiphenoxypropane dihydrochloride (propamidine). A watery gel of between 4.5 and 5 per cent of methyl cellulose was selected as a vehicle for the propamidine. The wound was cleaned with isotonic solution of sodium chloride and explored to ensure that the jelly would come in contact with the entire surface. A sterile spatula was used to fill up the cavity to skin level with 0.1 per cent propamidine jelly. The jelly must not come in contact with the edges of the skin. The wound and surrounding area were then covered with two or three layers of impermeable petrolatum gauze and a thin layer of gauze or wool over the petrolatum gauze. On redressing, exudate and stale jelly were swabbed or washed out with saline solution and fresh jelly was applied as before. A 0.4 per cent concentration of the drug caused necrosis of granulation tissue, and concentrations in excess of 0.1 per cent tended to injure granulation. Full benefit was obtained in ten days. A second course of treatment can be given for reinfection. A satisfactory result may sometimes be obtained when an interval of a week is left between dressings. When redressing was painless and easily done the dressing was changed on alternate days or, when there was much discharge, even daily. Cultures showed that the streptococcus was the first to disappear and then the staphylococcus. Proteus vulgaris and Pseudomonas pyocyanea often persisted without appearing to retard progress. Correctly used, propamidine can clear the field of dangerous organisms within ten days and then other necessary measures may be proceeded with.

Propamidine in Chronic Streptococcic Infection.—McIndoe and Tilley assessed the value of propamidine in 11 open persistent old wounds secondarily infected by a beta hemolytic streptococcus of open wounds and old burns which had failed to heal with diluted solution of sodium hypochlorite or sulfanilamide, tulle gras and saline solution. One uninfected fresh burn also was treated. The technic employed was that developed by Thrower. In some instances improvement was evident within forty-eight hours of treatment, especially in the more recent infections. Older or more indolent surfaces responded less rapidly, but steady improvement occurred in all cases coincidentally with the disappearance of beta hemolytic streptococci. Streptococcus control took place in two to ten days, though reinfection, requiring a second course, occurred several times. The authors did not see irritation of the surrounding skin and necrosis of the granulating surface after more than ten days of treatment; in only 1 such patient was there a mild irritation of the skin. While the beta hemolytic streptococcus was effectively controlled, this was not the case with other organisms. In 3 patients subsequent grafts failed partially, because of staphylococcic infection. Although healing may take place at a normal rate in the presence of saprophytic and mild pathogenic organisms, a graft may be mechanically lifted from its bed. A 0.1 per cent propamidine in a lanette wax and petrolatum base was superior to a water soluble jelly mixture. The result in the fresh burn was impressive.

Propamidine in Burns.—Morley and Bentley treated 7 burns within five hours of the accident, 5 that were treated elsewhere for three or more days and 2 infected areas as preparation for skin grafting with propamidine. Speedy healing of the burned areas without relapse or indolence suggests that streptococcic and staphylococcic infection was effectively controlled. The progress of the burns has been remarkable for the rapidity of separation of slough and the speed of epithelization. The latter and the mobility of the part throughout treatment combined to produce a minimum of scar tissue and an extremely good cosmetic and functional result. When propamidine was tried as an alternative dressing for areas that had become indolent or infected with sulfonamide resistant organisms, infection yielded quickly to propamidine and healing was accelerated. Propamidine appears of value in the early separation of tight sloughs in deep burns by virtue of its apparent property of controlling streptococcic and staphylococcic infection while allowing saprophytic and proteolytic organisms to flourish. These organisms must be controlled by other measures before skin grafting is done.

Murine Typhus in British Soldiers in West Africa.—Smith and Evans report the occurrence of 4 cases of murine typhus in Europeans in a West African colony in which the disease has not occurred heretofore. The cases show that the diagnosis not only can be missed because of the mildness of the clinical course but also may be confused by alterations in the Widal reactions due to TAB inoculation and by failure to read agglutination tests as late as the twenty-first day after onset. The typhus occurred in soldiers living under good conditions in a good climate. Their food was liberal. Only 1 was shown to have subtertian malaria parasites in the blood, but he gave no history of clinical malaria. The longest time spent on the West Coast of Africa by any of the 4 men was ten months. The first patient could not well have been more severely ill and survived; the picture he presented conformed closely to the classic descriptions of epidemic typhus. The disease in the other 3 was less severe. These 3 men were not only from the same billet but actually from the same bed, each patient moving into the infected bed as the previous occupant was admitted to the hospital. Common to all 4 were a dusky cyanotic flush of the face, mental clarity during the day, delirium

at night and bronchitis. There were the severe frontal headache, insomnia, the characteristic rash on the fifth or sixth day and continuous fever for ten to sixteen days. The contrast of the Weil-Felix reactions in these 4 patients of murine typhus and 11 instances of pyrexia due to other causes shows that a rise in titer above 1 in 50 with OX19 suspension suggests typhus, and a rising subsequent titer confirms the diagnosis.

Confinia Neurologica, Basel

5:1-112 (Nos. 1-2) 1942

Partial Paralysis of Upward Gaze. B. J. Alpers.—p. 1.
*Neuritis in Course of Syphilitic Mesaortitis. A. Berner.—p. 13.
Metrazol Convulsion Therapy in Certain Forms of Hysteria. J. Titeca.—p. 37.
Present Status of Anatomic Research on Schizophrenia. S. Scheidegger.—p. 65.
Modification of Mastic Test in Cerebrospinal Fluid. D. Acél.—p. 71.

Neuritis in Course of Syphilitic Mesaortitis.—Berner investigated the nerves in a syphilitic aorta, their inflammatory alterations and their importance in the neurologic features of the disease. He found that nerves were involved in the inflammatory processes of the aortic wall in 35 out of 42 cases of syphilitic arteritis. The sympathetic ganglions likewise show inflammatory changes. The author's observations include studies on 15 recurrent nerves and on 3 vagus nerves. In 8 cases the recurrent and in 3 cases the vagus was involved in the inflammatory process of the neighboring aorta. In 1 case of paralysis of the recurrent nerve it was the site of an extensive inflammation. The author considers these alterations as the basis for the nervous disturbances caused by syphilitic aortitis. The nervous compression phenomena the result of a dilated aorta are of less importance than the fact that the aortic nerves themselves participate in the inflammatory process.

Schweizerische medizinische Wochenschrift, Basel

72:997-1024 (Sept. 12) 1942

Diagnostic Significance of Cutaneous Manifestations in Internal Diseases. P. Robert.—p. 997.
*New Points of View in Estimation of Hematogenic Renal Tuberculosis. H. U. Gloor.—p. 1001.
Problem of Thrombosis. T. Koller.—p. 1008.
Muscle Contractures in Epidemic Poliomyelitis. R. Scherb.—p. 1009.
Question of Possibility of Traumatic Genesis of Pfeiffer's Glandular Fever. H. Pinösch.—p. 1012.
Maturity of Newborn and Development of Centers of Ossification. J. H. Müller and J. Balbi.—p. 1013.
Sulfathiazole and Acute Septic Endocarditis. E. Macháček.—p. 1015.

Renal Tuberculosis.—Gloor considers the problem of renal tuberculosis from the standpoint of military insurance. The problem of recurrence presents many difficulties. Thus, after a long interval it is difficult to decide whether a local exacerbation or a distant metastasis had its origin in a lesion that had developed during the time covered by military insurance. This problem is encountered in many cases of renal tuberculosis. Until recently it was assumed that renal tuberculosis would become manifest soon after a focus had formed and that in cases in which a long interval existed between an attack of tuberculosis during military service and the subsequent development of a urogenital complication the kidneys had been attacked by a fresh bacillosis. It was conceded, however, that lack of exact knowledge and the necessity of evaluating a case on the basis of experience and probability justified the acceptance of a causal relationship when the interval was not too long and when evidence to the contrary did not exist. Gloor and Uehlinger reported previously 9 cases of renal tuberculosis in which at least eight years had elapsed between the hematogenic dissemination and signs of tuberculosis of the urinary passages. Gloor now reports 32 cases in which unilateral nephrectomy was done for renal tuberculosis. The majority of cases gave Gloor the impression that the specific process had existed for many years. It is necessary to differentiate between a descending and an ascending form of renal tuberculosis. In both instances the process originates in papillary foci, but in the case of a descending process the perforation into the renal pelvis takes place relatively early, whereas in the ascending type the process is shut off by a connective tissue wall, and in these cases the silent interval is much longer than in the descending type. Open renal tuberculosis may exist for years without becoming extensive. Many patients with severe renal destruction are not aware of the condition. Military insurance should take into consideration the demonstrated frequency of the long, silent interval, which may last eight years or more.

Medicina Española, Valencia

8:429-538 (Nov.) 1942. **Partial Index**

*Alimentary Factors in Carcinogenesis. L. Cornil and M. Schachter.—p. 429.
Deficiency Syndromes in Ophthalmology. A. Moreu.—p. 448.
Dementia Paralytica. F. Marco Merenciano.—p. 468.
Influence of State of Weather on Rheumatic Processes: Possible Explanation of This Influence and Its Therapeutic Significance. J. Carrera Lorenzo.—p. 482.
Hypophysial Origin of Metabolic Craniopathias. V. Altava.—p. 495.
*Sulfathiazole in Ophthalmology. E. Selfa.—p. 498.
Varieties of Pyloric Strictures. S. Martínez Gómez.—p. 503.

Alimentary Factors and Carcinogenesis.—Cornil and Schachter point out that the advances in the study of experimental carcinogenesis have raised the question of the possible influence of certain foods on the origin of malignant tumors. They review possible carcinogenic effects of various alimentary factors and present a general dietetic scheme for a cancer patient. Overfeeding should be avoided. The patient should receive from 1,600 to 2,000 calories daily. Excess of alkaline foods should be avoided. Food rich in calcium or ammonium salts should be added. Proteins are permitted even to excess, particularly in the form of meats. Sugars are to be given in only small quantities, because large amounts of carbohydrates favor the growth of cancers. Fats can be given in generous amounts in the form of butter or vegetable oils. Although in experiments it has been proved that diets deficient in vitamins have an inhibiting effect on cancer growth and metastasization they also noticeably shorten the life of the patient and for this reason are inadvisable. Favorable clinical results have been obtained by reducing the intake of foods that are sources of vitamin B (cauliflower, turnips and spinach) and by a moderate intake of vitamin A in the form of butter and cod liver oil. Onions, leeks, garlic and mustard have a somewhat inhibiting effect on tumoral growth. Alcohol in small doses is not contraindicated.

Sulfathiazole in Ophthalmology.—Selfa gave from 0.03 to 0.04 Gm. of sulfathiazole per kilogram of body weight for from six to nine days. When necessary, he repeats this medication after an interval of five days. Four patients with sties were cured by sulfathiazole in from two to four days. Two cases of acute staphylococcic conjunctivitis responded to sulfathiazole and mild protein silver in from seven to eight days. Sulfathiazole together with local remedies was effective also in 4 cases of chronic conjunctivitis. The action of sulfathiazole in 3 cases of acute dacryocystitis was not quite as prompt as that of azosulfamide. Sulfathiazole proved ineffective in 2 cases of fistulous dacryocystitis. In 16 cases of trachoma sulfathiazole medication was combined with local applications. There was no appreciable effect on the follicles, but the corneal lesions, the subjective symptoms and the superimposed infection yielded rapidly. This diversity of action on the palpebral and corneal localizations of trachoma is an apparent contradiction. If the corneal ulcers are to be regarded as the result of the trachomatous follicles, it is difficult to explain why the sulfonamides act so energetically on the corneal localization. This dissociation of effect suggests two stages or types in the development of the causal organism of granular conjunctivitis. The age of the trachoma may also be a decisive factor. In ocular disorders sulfathiazole produces effects similar to those of sulfanilamide, but in the case of a sty its action is more rapid and energetic than that of other sulfonamides.

Revista Argentina de Neurol. y Psquiat., Rosario

7:117-188 (Sept.) 1942. **Partial Index**

*Lichtheim Syndrome: Neurologic Study. F. L. Marelli.—p. 117.
Neurosyphilis. T. Fracassi.—p. 143.
Medicosocial Problem of Insanity. T. Fracassi.—p. 153.

Lichtheim Syndrome.—Marelli reports 8 cases of subacute combined degeneration of the spinal cord (Lichtheim syndrome) in patients between 22 and 50 years of age. The neurologic symptoms appeared in the course of anemia caused by gastro-

intestinal disorders and diarrhea in 1 case, after prolonged exposure to cold in another, and in the course of a chronic infection or following acute infection in 3 cases. The symptoms appeared suddenly in some and slowly in others. Anemia, motor and sensory disorders, especially slight paralysis of the arms, more or less acute paralysis of the legs, signs of pyramidal lesions, dysesthesia and muscular pain occurred in all cases. Anemia appeared either before or after the appearance of the neurologic symptoms. It was of the hyperchromic type in patients with the acute onset of the neurologic signs and of either the hypochromic or normochromic type in patients with a mild type of the disease. Early or recurrent mental disorders with hallucinations or of the type of dementia paralytica occurred in cases in which the disease had a sudden onset. The blood Wassermann reactions and the cerebrospinal fluid Wassermann tests were negative in all. The colloidal gold test showed a deviation of the curve to the left, similar to that observed in syphilis and in multiple sclerosis. Early liver and vitamin B_1 therapy controls anemia, mental symptoms and the degenerative process of the nervous tissue. The author found at a necropsy that the posterior and lateral columns of the cord were the localizations of acute degeneration, while the cerebellum and the cerebrum exhibited a moderate involvement. The author believes the disease to be caused by an exogenic toxin which causes selective degeneration of the nervous tissue if the resistance of the latter is diminished because of avitaminosis A and B_1.

Revista Clínica Española, Madrid

6:361-448 (Sept. 30) 1942. **Partial Index**

Cushing's Disease. E. Romero Velasco.—p. 361.
Effect of Male Sex Hormone on Experimental Myodystrophy. F. Vivanco and C. Jiménez Diaz.—p. 368.
Experimental Studies on Malnutrition. C. Jiménez Díaz, J. Sánchez Rodríguez, J. G. Villasante, F. Vivanco and H. Castro Mendoza.—p. 371.
*Immediate Mobilization of Those Operated on for Disease Conditions of Digestive Tract: Results in 74 Cases. C. González Bueno.—p. 405.
Studies on Nature of Antigens of Pollen: Action of Ferments on Their Activity. E. Arjona and J. M. Alés.—p. 422.
Gastric Ulcer Carcinoma Implanted in Surgical Scar of Gastroenteroanastomosis. R. Martínez Domínguez and M. Rodríguez Iglesias.—p. 427.
*Atypical Localization of Rheumatic Nodules. L. Lorente and C. Marina.—p. 430.

Immediate Mobilization After Operations on the Digestive Tract.—After more than two thousand operations on the digestive tract, González Bueno concluded that postoperative care could be simplified. The absence of postoperative complications made him decide that the patients should leave the operating table on their own feet. He reviews reports on a series of seventy-four consecutive laparotomies in which the postoperative treatment was ambulatory. The operations were on the stomach, the biliary tract, the liver or the intestine. To make possible immediate postoperative mobilization the patient must be carefully prepared for the operation. He should be kept in bed for twenty-four hours before and should be subjected to careful clinical examination, including laboratory tests. The type of anesthesia is an important factor. The author uses a local circumscribed anesthesia that involves only the abdominal wall. The surgical technic must be exact and delicate but rapid. After the operation the patients put on their own clothes and left the operating room on foot. For two days they were kept in special rooms where they sat in easy chairs. They were urged to move their extremities frequently and take deep inspirations. Some even went for a walk. After two days they returned to their wards, where they were comparatively active. Pulse rate, blood pressure, urination and intestinal function were carefully watched. No great changes were observed. A blood examination was made daily. The patients were all discharged in the course of ten days. There were no pulmonary, circulatory or renal complications. The intestinal motility and the renal function were quickly normalized. There were no gastrorrhagias, hematomas or dehiscences. The ambulatory postoperative treatment has also a beneficial psychologic effect. It is not possible in all cases nor can it be carried out by an inexperienced surgeon.

Atypical Localization of Rheumatic Nodules.—Lorente and Marina point out that rheumatic nodules, particularly in children, are localized most frequently in the periarterial tissues of the extremities. They recently observed a girl aged 11 who had active rheumatic endocarditis with mitral stenosis and on whose abdomen were two curious little lumps. A history of rheumatic pains and the localization of the nodules in the subcutaneous tissue suggested their rheumatic nature. A biopsy confirmed it.

Semana Médica, Buenos Aires

49:1261-1320 (Nov. 26) 1942. **Partial Index**

Heterotopias: Their Clinical Importance. J. R. Goyena, R. S. Abad and A. Dagnino.—p. 1261.
*Study of Blood During Pregnancy. F. R. Merchante.—p. 1273.
Sexual Psychology: Jealousies. L. Sirlin.—p. 1280.
Hyperphosphoremia in Clinical and Experimental Lesions of Liver. A. P. Cinelli.—p. 1292.
Carbuncle and Diphtheria. I. Natin, Cornelia Da Rin and S. Dussaut.—p. 1297.
Bismuth in Treatment of Poliomyelitis. A. Calabrese.—p. 1303.
Osteomyelitis of Frontal Bone. E. P. Giordano and A. L. Spataro.—p. 1304.

Blood During Pregnancy.—Merchante determined in 46 women the hemoglobin by the ferrometric method of Wong, the volume of erythrocytes by the method of Wintrobe and the number of erythrocytes per cubic millimeter. The results show that the hemoglobin content, the volume and the number of erythrocytes diminish from the beginning to the end of pregnancy. The hemoglobin value shows a slight increase in the second month; there is an abrupt decrease in the third and a slower one thereafter with an increase in velocity in the eighth and a slight ascent in the ninth. The values fluctuate between 12.55 Gm. per hundred cubic centimeters in the first month and 11.45 Gm. per hundred cubic centimeters in the ninth, temporarily reaching about 13 per hundred cubic centimeters in the second month. The erythrocyte count per cubic millimeter decreases progressively from the beginning to the end of pregnancy. At times there is a slight relative increase in the fourth month. The figures fluctuate between 4,358,000 during the first month and 3,572,000 in the ninth. The total volume of erythrocytes decreases progressively from 42.42 per cent during the first month to 38.96 per cent in the ninth; occasionally there is a slight increase during the second month.

49:1321-1884 (Dec. 3) 1942. **Partial Index**

Anterosuperior Costal Mobilization of Graf-Schmidt. R. Finochietto, H. Aguilar and L. L. Fernández.—p. 1321.
Association of Pulmonary Tuberculosis and Primary Bronchial Cancer. J. González Warcalde.—p. 1328.
Sedimentation Speed of Erythrocytes in Clinical Practice. M. del Sel and J. Gersovich.—p. 1339.
Ulcer of Os Uteri. D. J. J. Martínez.—p. 1346.
Adiposogenital Dystrophy of Fröhlich's Type. E. Cantilo and C. Fernández Speroni.—p. 1349.
*Roentgen Therapy of Glaucoma. M. F. Terrizzano and A. J. M. Terrizzano.—p. 1354.
Shigella and Salmonella as Causes of Infantile Diarrheas in Rosario. E. Grichener, F. Montaut and S. J. Romer.—p. 1356.
Intermittent Irrigation in Prophylaxis of Malaria in Rice Fields. M. M. Lobo.—p. 1361.
Meningitis Due to Pfeiffer's Bacillus Cured by Sulfapyridine. F. Bazán and M. H. Bortagaray.—p. 1367.

Roentgen Therapy of Glaucoma.—The Terrizzanos employed roentgen irradiation in 10 cases of glaucoma. One was of traumatic origin, 6 were painful and chronic, 2 were hemorrhagic, and in 1 the glaucoma was accompanied by hypertensive iritis. All were improved. Pains and lacrimation either disappeared or improved. Keratoconjunctival inflammation disappeared rapidly and the authors observed no disagreeable reaction. Only 1 of the 10 patients had a relapse after seven months, which could be counteracted by two new irradiations. The authors suggest that the effect of roentgen therapy is due to complex action on intraocular osmotic phenomena, modifications in the capillary circulation, tissue ionization, variations in the acid base and colloidal equilibrium and a direct action on the neural terminations. Tension of 140 kilovolts, with 10 milliamperes, at a distance of 50 cm. and filtration through 0.25 mm. of copper and 1 mm. of aluminum gives the best results.

Book Notices

The Hemorrhagic Diseases and the Physiology of Hemostasis. By Armand J. Quick, Ph.D., M.D., Associate Professor of Pharmacology, Marquette University School of Medicine, Milwaukee. Cloth. Price, $5. Pp. 340, with 24 illustrations. Springfield, Ill. and Baltimore: Charles C Thomas, 1942.

The past five years have witnessed great clarification in the mysteries surrounding the various problems relating to blood clotting. In this period a number of seemingly unrelated investigations have converged: newer knowledge regarding prothrombin and methods for its detection, discovery of the antihemorrhagic vitamin K, purification and therapeutic use of heparin, and discovery in sweet clover disease of cattle of the hemorrhagic factor dicumarol. In these investigations the name of Quick has constantly loomed large and it is therefore fitting that the first authoritative monograph on the physiology and clinical manifestations of normal and abnormal hemostasis should have been written by this Marquette University investigator.

The book is distinguished by its thoroughness and clarity, and above all by its wisdom. Well and simply written, it fulfils a long felt need in grouping together in separate chapters the many accumulated bits of knowledge regarding thrombin, prothrombin, thromboplastin, fibrinogen, platelets and anticoagulants. The references, which are unusually complete, are alphabetically grouped at the end of each chapter.

Discussions of physiologic principles are followed by chapters dealing with such clinical conditions as thrombopenic purpura, hemophilia and hypoprothrombinemia, and the uses of heparin and dicumarol. Although a thoroughgoing discussion and painstaking review of the literature distinguish these chapters as well, they suffer somewhat from the author's primary concern with the laboratory rather than with the clinic. Particularly with thrombopenic purpura and hemophilia there is too much reliance on the literature (this is often a bad tendency, since "the literature" is made up of good stuff and bad). Also some of the author's "pet" theories, e. g. a histamine disturbance in purpura and a simple thromboplastin defect in hemophilia, are perhaps unduly emphasized. There is increasing evidence that idiopathic thrombopenic purpura is primarily a splenic dysfunction with remote, possibly hormonal, inhibition of platelet formation from megakaryocytes in the bone marrow. As regards hemophilia, the clearcut experiments of F. H. L. Taylor and his associates at the Thorndike Memorial Laboratories in Boston are dismissed with scant notice. Whether hemophilia is primarily a thromboplastin deficiency or an abnormality in the euglobulin fraction of the plasma is still not entirely settled; perhaps both groups of investigators are right.

These criticisms might be classed as captious, for the book is not only authoritative and thorough but respectful of the large literature and not unmindful of the historical roots of a particular subject. The format, typography and printing are quite in keeping with the general excellence of the work, which is completed by an appendix containing methods for determination of the coagulation time, bleeding time, clot retraction, platelet count, prothrombin and fibrinogen together with methods for assay of thromboplastin, thrombin and heparin. The book is highly recommended for use in general hospitals and clinical laboratories. Collaboration with a clinical investigator might be desirable in a second edition.

Dark Legend: A Study in Murder. By Frederic Wertham, Senior Psychiatrist, Department of Hospitals, New York City. Cloth. Price, $2.75. Pp. 270. New York: Duell, Sloan & Pearce, 1941.

This is a popular yet authentic account of a 17 year old matricide. His own story of the events leading to the murder, of the crime itself and the author's analysis of the crime are given. The case is that of an Italian boy who murdered his mother, consciously motivated by his feeling that by her sexual promiscuity she had dishonored the family and the boy's deceased father. The author proceeds to show that more important unconscious motives determined the criminal act. The book is an excellent contribution to forensic psychiatry. The author shows the dilemma of the psychiatrist faced with the rigid legalistic conceptions of insanity on the one hand and his convictions that as a physician he must regard the boy as ill, must understand the nature of this illness and if possible initiate steps leading to a possible cure. His careful diagnostic discussion of the case will be of interest to all physicians. Having ruled out the major psychoses, he suggests that clinical patterns like that presented in his case could be called "catathymic crises," a circumscribed mental disorder in which the central manifestation is the development of the idea that "a violent act—against another person or oneself—is the only solution to a profound conflict whose real nature remains below the threshold of the consciousness of the patient." The book is written in popular style and the author offers as background for his observations numerous references to the tragedies of Hamlet and Orestes, in which he shows that the reactions of his young patient to his conflictful situation are in many precise respects those of Hamlet or of Orestes. In other words he makes it clear that matricide is based on unconscious motivations, better recognized thus far by the poets than by the professional students of human behavior, at least until recent years. This book should be in every medical library.

Orthopedic Nursing: Content and Method of the Teaching Program in Schools of Nursing. By Carmelita Calderwood, R.N., Consultant in Orthopedic Nursing, National League of Nursing Education, New York. Paper. Pp. 64. New York: Joint Orthopedic Nursing Advisory Service of the National Organization for Public Health Nursing and the National League of Nursing Education, 1942.

Too little consideration has been devoted to orthopedic instruction during the training of student nurses. Satisfactory care of the orthopedic patient requires special knowledge of technic and procedures not possessed by the average graduate nurse. This small pamphlet, published and distributed by the Joint Orthopedic Nursing Advisory Services of the National Organization for Public Health Nursing and the National League of Nursing Education, is a much needed outline of methods and materials which should be available to those who are responsible for the teaching program in every school of nursing.

Aids to the Investigation of Peripheral Nerve Injuries. Medical Research Council: Nerve Injuries Committee. M. R. C. War Memorandum No. 7. Paper. Price, 60 cents; 2s. Pp. 48, with 74 illustrations. New York: British Information Services; London: His Majesty's Stationery Office, 1942.

As an aid to the diagnosis of lesions of the peripheral nerves, this pamphlet illustrates in a series of excellent pictures the actions of the various muscles of the body. With the accompanying diagrams giving the general course of the principal nerves of the body and the muscles which they supply, a complete examination of the peripheral nervous system can be easily carried out. The pictures are exceptionally clear and the diagrams excellent. The material here presented in a compact form could be found only in numerous textbooks. It was prepared by the staff of the department of surgery of the University of Edinburgh.

Fundamental Principles of Bacteriology. By A. J. Salle, B.S., M.S., Ph.D., Associate Professor of Bacteriology, University of California, Los Angeles. Second edition. Cloth. Price, $4. Pp. 643, with 253 illustrations. New York & London: McGraw-Hill Book Company, Inc., 1943.

This edition contains more textbook material than the previous edition. The laboratory procedures have been taken out of the second edition and included in a separate manual prepared by the author. Numerous chemical formulas are given especially in the chapters on biologic stains, disinfection and disinfectants, enzymes of bacteria, the respiration of bacteria, protein decomposition, industrial fermentations, the bacteriology of water and the bacteriology of soil. These excellent chemical illustrations make it unnecessary to consult textbooks of chemistry for a complete understanding of the subjects. The book is not a treatise on medical bacteriology since only three of the twenty-seven chapters are devoted to this field. The fundamentals of bacteriology are well covered and the book can be heartily recommended to students in basic courses in bacteriology and to physicians who wish to bring their knowledge of bacteriology up to date.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

RAPID TREATMENT OF EARLY SYPHILIS

To the Editor:—In *Collier's*, April 10, 1943, it is stated that mapharsen used three times a week with bismuth for eight weeks produces cures of syphilis. Is this true or is it like when arsphenamine came in use and it was considered that one dose produced a cure? How often should mapharsen be used, three times a week or one time a week? Has any change of time been accepted for cures or is the eighteen month treatment still considered necessary?

D. D. DeNeen, M.D., Las Cruces, N. M.

To the Editor:—In the April 10 issue of *Collier's* there is an article by J. D. Ratcliff in regard to treatment of syphilis in Louisiana. He states that syphilis is cured in two months by three doses of mapharsen weekly plus one injection of bismuth weekly. Has this outline been tried long enough to know that it will give complete cure in this short time? And are these two given at the same time?

W. L. Boswell, M.D., Clarendon, Ark.

ANSWER.—Eagle and Hogan have attempted to approach the treatment of syphilis in man by experimental study of rabbit syphilis. While a review of all the work they have done would be impossible in this reply, it may be stated that even though rabbit syphilis is not necessarily human syphilis a great number of the truths applicable to the one will apply to the human being and vice versa. Among other things they have found that until the time limits within which infectious relapse may occur in the syphilized rabbit have been more thoroughly defined the absolute curative dose of arsenicals in rabbit syphilis cannot be determined by lymph node transfer. Even data as to the relative efficacy of various treatment procedures must be interpreted in the light of the time allowed to elapse between treatment and the following lymph node transfer. Their studies showed that, six months after treatment in a large series of rabbits, apparently cured at three months as judged by lymph node transfer, 37 per cent of them were still infectious. Apparently the disease was actually quiescent at three months after treatment but not cured. And may there not be a lesson in this in considering the treatment of human syphilis?

As the result of their studies on rabbit syphilis and of the conclusions that they felt justified in drawing, it has been suggested by them that an intravenous injection of an arsenical be given three times a week to human beings and that an intramuscular injection of a bismuth preparation be given once a week. This work has been carried on for an insufficient length of time to allow any one to draw definite conclusions.

In 1937 Thomas and Wexler increased the number of injections of mapharsen from one to two a week at their clinic in Bellevue Hospital, and by 1938 they had raised the number to three a week for a period of four weeks, for all patients with early infectious syphilis. In the light of the publicity that has recently been given to the intravenous drip treatment they determined to attempt rapid massive treatment of syphilis without the continuous drip, as their facilities at Bellevue did not easily allow the latter. They now combine their intravenous injections of an arsenical preparation once a day for ten days with fever treatment achieved by an intravenous injection of typhoid-paratyphoid vaccine given on the second, fourth, sixth and eighth days. They feel that their results with this form of therapy for early syphilis are quite satisfactory. Naturally, all the patients are hospitalized. They are studied carefully and everything is done for them by experts in the field.

Both these technics indicate experimental forms of treatment of acute syphilis that are being employed at present. Moreover, the intravenous drip treatment is still being employed in certain treatment centers. Naturally none of these forms of therapy are yet ready to be carried out by the inexperienced. They include far more than simply the giving of an injection. The physician attending such cases must be well acquainted not only with the diagnosis of the disease but also with the handling of any emergencies that may arise where such heavy therapy is being employed. Also he must be competent to follow the patient afterward and to interpret any unusual reactions or manifestations that appear. Unfortunately, the treatment of acute syphilis is not yet simple.

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HAND MADE AND MACHINE MADE CIGARS

To the Editor:—What, if any, deleterious effects have been noted in smoking cigars made by the dirty paste hand method as compared to the precision-like and sanitary machine produced cigars? Ph.G. New York.

ANSWER.—For centuries the manufacture of cigars represented a highly skilled and artistic craft, whose products were highly prized. When machine made cigars were first introduced they were sold at lower prices because of the general prejudice in favor of the hand made variety. The individual selection, orientation, packing and sealing of the filler and wrapper in hand made cigars were especially emphasized.

Within the past generation, energetic attempts have been made by advertising agencies to reverse this popular attitude. The advertising has particularly stressed the esthetically repulsive as well as hygienically unsound practice of licking the edge of the wrapper leaf or the tip, reportedly practiced by many of the skilled hand workers. The survival of tubercle bacilli on tobacco leaf was demonstrated by Kerez nearly half a century ago, and the occurrence of tubercle bacilli in cigars so made has been reported repeatedly since. The high incidence of tuberculosis among cigar makers, which was noted by a number of workers a generation ago, emphasized the danger from that source.

The use of a paste or gum, applied with a brush, which is the common method of sealing hand made cigars today, may involve the possibility of contamination with organisms from the paste or from the hand of the workers, but tubercle bacilli are not so apt to be transmitted in this way. Other organisms may be demonstrated in cigars prepared in this way, but their viability and virulence are more apt to be eliminated by drying and standing before the cigars are actually used. Accordingly, disease due to pyogenic cocci, Treponema pallidum and other possible vectors has yet to be traced to contamination during the manufacture of cigars.

The hazard from infection through hand made cigars need not be exaggerated. The danger of immediate transfer of infection from the passing of a cigar from mouth to mouth is apparently much less than with the more frequently observed practice with cigarets and pipes. But it is questionable whether the esthetic appreciation of the traditional art of the cigar maker outweighs the esthetic objections to the uncleanliness traditionally associated with his product.

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MULTIPLE DOSES OF MAPHARSEN FOR EARLY SYPHILIS

To the Editor:—In view of the recent so-called five day treatment for early syphilis by the continuous administration of mapharsen, would it be good practice to give mapharsen in the usual dose twice or three times a week in early syphilis instead of once a week? If so, has there been any work done using this plan of treatment, and where could I find any literature pertaining to this particular question?

U. S. Hargrove, M.D., Baton Rouge, La.

ANSWER.—Yes, there have been many attempts to use mapharsen more frequently than once a week in the treatment of early syphilis; e. g., the attempt has been made to give an injection of mapharsen daily for a period of twenty or thirty days. Naturally, the reactions were numerous, enough so that this practice has since been discontinued. Thomas and his co-workers (Cere-

bral Reactions Associated with Massive Mapharsen Treatment of Early Syphilis, *Am. J. Syph., Gonor. & Ven. Dis.* **26**:529 [Sept.] 1942) have done a great deal of work along this line, trying various methods of employing arsenicals in early syphilis, as have also Eagle and Hogan (Intravenous Drip and Other Intensive Methods for Treatment of Early Syphilis, *Science* **95**:360 [April 3] 1942). It may be concluded that it has been found good practice to give as much arsenical therapy as is safe in the early stages of the syphilis. Again Cole (Syphilotherapy: Recent Advances, THE JOURNAL, Sept. 27, 1941, p. 1091) has suggested the use of more frequent injections than once a week in the early stages of syphilis. In fact, in many of the syphilis clinics it has been the practice for several years to use multiple doses of mapharsen for the first few weeks of treatment. It should be understood that nearly all this work has been done in university clinics or in syphilis clinics under the best of conditions where every facility is at hand to study the patient and to observe reactions.

As yet it is too early for such therapy to be employed on an extensive scale in private practice. Naturally it is to be hoped that as a result of all these observations much good will be achieved in the way of better arsenical therapy for early syphilis.

CONTRAINDICATIONS FOR DIETHYLSTILBESTROL

To the Editor:—Kindly give me the contraindications for the use of diethylstilbestrol and any possible harmful effects of its use.

J. Howard Gould, M.D., Ridgewood, N. J.

ANSWER.—Diethylstilbestrol is the potent estrogenic substance made synthetically. The contraindications for its use are the same as for the natural estrogens. These include excessive menstrual flow, prolonged menstrual flow, the presence of any neoplastic disorder in the genitalia or in the breast, and some authors think the presence of neoplasm in any part of the body. The latter is debatable. In addition, diethylstilbestrol and its derivatives have an apparent tendency to cause nausea and emesis in a considerably larger number of patients than suffer the discomfort from the use of even very large doses of the natural estrogen. This is a temporary phenomenon and is apparently produced not in the gasterointestinal tract but centrally. Occasional cases of a skin reaction have been reported. Used within the limits of dosage which are conventionally necessary for the control of climacteric symptoms, for the relief of breast discomfort post partum or for the treatment of vaginitis in the preadolescent or the postmenopausal patient, there is no obvious harm if nausea and emesis do not occur.

BLOOD FOR TRANSFUSION FROM EPILEPTICS

To the Editor:—The question has been raised as to whether or not there is any contraindication to using the blood of patients with epilepsy for transfusion into nonepileptic persons. What would be the proper answer to a group of epileptic patients who have volunteered to donate blood to the Red Cross and other similar organizations?

Willard W. Dickerson, M.D., Caro, Mich.

ANSWER.—Epilepsy is not an infectious disease and, except immediately after a convulsion, the blood of physically normal patients is normal. Therefore, provided adult epileptic patients are in proper physical condition, the use of their blood for transfusion purposes is not contraindicated. If part of a blood pool, the amount of contained phenobarbital or phenytoin sodium would be infinitesimal. Probably the loss of a pint of blood would not increase seizures, but if the institutional diet is relatively poor in protein the patient's diet and hemoglobin should receive special attention. Because epileptic persons are denied service in the armed forces and to a large extent in industry, the opportunity to participate in supplying blood for the common good should be beneficial to their morale. Inmates of hospitals and prisons would seem to be a logical source of blood which is to be used in the war effort.

HONEY FOR INFANT FEEDING

To the Editor:—Will you kindly advise me regarding the use of honey for infant feeding.

M.D., Vermont.

ANSWER.—Honey consists of a mixture of sugars, chiefly levulose and dextrose with some cane sugar. It was formerly used as the carbohydrate addition to any artificial mixture in amounts of 1 ounce in a twenty-four hour feeding, although its ease in digestion makes it possible to use more of it than of other carbohydrates. It was not believed that it possessed any special advantages over other forms of sugars and was thought to have allergic tendencies for some infants. Recently it has come into use again. Lahdensuc (*Acta Soc. med. fenn. duodecim* **15**:1 [series B, No. 3] 1931) reported that it decreased diarrhea and vomiting, and Knott, Shukers and Schlutz (*J. Pediat.* **19**:485 [Oct.] 1941) that it seemed to have a beneficial effect on calcium retention.

EFFECT OF MALARIA ON EPILEPSY

To the Editor:—Does malaria exert a healing effect on epilepsy? Hippocrates wrote (Epid. 1, sect. III) "The least dangerous, mildest and most prolonged of all is quartan fever; for it is not only such in itself but it also removes other types of dangerous diseases," and (Epid. VI, sect. VI. 5) "Patients suffering from the great disease (epilepsy) not affected by quartan fever, if they become affected by it, then they are freed from epilepsy." Also Aphor. V, 70, "Persons attacked with quartans are not readily attacked with convulsions, or if previously attacked with convulsions, they cease if a quartan supervenes." Rhuphos also testifies to this truth. Reference: Max Neuberger, The Doctrine of the Healing Power of Nature Throughout the Course of Time, translated by L. J. Boyd, New York.

Fred Stenn, Lieut., M. C., A. U. S.

ANSWER.—These references to ancient authors are of great interest historically, but the observations presumably were based on uncontrolled observations. The inadequate modern observations on the subject have been reviewed by Gladys C. Terry (Fever and Psychoses, New York, Paul B. Hoeber, Inc., 1939). She gives three references to articles dealing with the effect of natural malaria infection and six references to the effect of artificially induced malaria. Presumably any favorable results which may be observed are due to the fever and not to the plasmodia. The author also summarizes the influence on seizures of infections other than malaria, and of hyperpyrexia induced by typhoid or sulfur or by diathermy. Results which were at least temporarily favorable were reported by the majority of authors, but the smallness of groups observed, the lack of control material and the tendency of workers to withhold publication of "negative" results do not warrant the drawing of conclusions. The subject deserves further study. In children fever oftentimes induces convulsions.

REMOVAL OF FISH HOOKS

To the Editor:—Some time ago in a fishing magazine I saw the following advice as to the method of removing a fish hook from one's anatomy. I should like to say that I don't agree with the method at all, owing to the fact that the barb in reverse would be most likely to do severe damage to nearby nerves and vessels. I agree with just the thing they do not agree with, that is the "push through" method, which I understand to mean to push the point of the hook through at the nearest point to the surface and then cut the barb off and slip the hook out. I should like to have your opinion on this matter. This is a quotation: "If you run a hook into your finger, beyond the barb, while going fishing or going over your gear this winter, forget that old gag about cutting it off short and pushing it through. Instead, take a pair of small nosed pliers, take a good hold on the hook yourself or have some one officiate for you, and yank. We have had plenty of hooks taken out of our own anatomy this way and we can vouch for its efficiency. Even big hooks come out without doing any real damage. Personally we do not go for that 'push through' technic at all at all."

R. H. McPherron, M.D., Chicago.

ANSWER.—By all odds the "push through" method is the best one for the removal of a fish hook in which the barb has gone in beneath the skin. Circumstances can conceivably arise in which it would require pushing the fish hook through a considerable distance by a curved route before the barb emerges from the skin. When this occurs, it would seem better to make a small incision down to the barb before pulling it out backward.

AMPHETAMINE FOR OBESITY

To the Editor:—In reply to a query regarding the use of amphetamine and its dextroisomer in obesity published in The Journal, March 6, 1943, page 796, it is stated ambiguously that the d form "is said to be two to four times more active than the levo form or the dl mixture." Alles (*Univ. California Pub., Pharmacol.* **1**:129, 1939) showed that the optical isomers are equipotent in their various peripheral actions, including that on the rabbit ileum; this equivalence of action has been confirmed (Emerson, G. A.: *J. Pharmacol. & Exper. Therap.* **76**:11 [Sept.] 1942) for blood pressure in dogs. Alles's finding of a greater central stimulant action of the d form, two to four times that of the l amine or one and a half to two times that of the racemic, has been noted also in man (Prinzmetal, Myron, and Alles, G. A.: *Proc. Soc. Exper. Biol. & Med.* **42**:206 [Oct.] 1939), but the equivalent sympathomimicity of the isomers does not appear to be as widely recognized. If the action in obesity depends entirely on central effects, through influencing appetite, the d form is likely to be more potent though not necessarily preferable to the racemic in the absence of cardiac disease or hypertension. Dennis Jackson's book Experimental Pharmacology and Materia Medica (St. Louis, C. V. Mosby Company, 1939) includes directions for studying effects of amphetamine on hunger contractions in decerebrate pigeons, but to my knowledge there are no published results of this technic.

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